

**ILLINOIS MUNICIPAL RETIREMENT FUND
MINUTES OF
REGULAR MEETING NO. 18-08
AUGUST 24, 2018**

ILLINOIS MUNICIPAL RETIREMENT FUND

MEETING NO. 18-08

REGULAR MEETING

OF THE

BOARD OF TRUSTEES

The Regular Meeting of the Board of Trustees was held at 9:00 a.m. August 24, 2018, in the Fund Office at 2211 York Road, Suite 400, Oak Brook, Illinois.

Ms. Copper presided as Chair and called the meeting to order.

There was a visual roll:

Present: Kuehne, Miller, Stanish, Thompson, Wallace, Williams, Copper, Henry
Absent: None

Ms. Becker-Wold and Mr. Ryan from Callan Associates, Ms. Mangat from CEM Pension Administration Benchmarking Service, Ms. Ronen from Kahn, Swick, Foti, and a representative from Loop Capital were also present.

(18-08-01) 2nd Quarter 2017 Investment Manager Report) Ms. Becker-Wold of Callan Associates presented an evaluation of IMRF's investment performance for the period ending Jun 30, 2018.

Discussion Followed.

(18-08-02) (Investment Manager Activities - Callan Associates) Mr. Ball of Callan Associates presented the following report to the Board on the activities of IMRF's investment managers for the month of July 2018:

(18-08-03) (Pension Administration Benchmarking Presentation) Ms. Mangat, Vice President of CEM Benchmarking, Inc. (CEM) along with the Deputy Executive Director, presented IMRF's benefit administration benchmarking results for the fiscal year 2017.

The Deputy Executive Director stated that in addition to providing important benchmarking metrics, this study allows IMRF to compare their customer service results to those of their peer group. This comparison helps identify customer service improvement opportunities. This is consistent with IMRF's ongoing *Journey of Excellence* initiatives, and with IMRF's approach to continuous process improvement. As a result of analyzing CEM reports, IMRF has implemented numerous service improvements over the years.

Ms. Mangat presented the following key highlights from the 2017 CEM Report:

- IMRF's total service score was 88 out of 100, placing IMRF in the top quartile among its peers.
- IMRF's total cost was \$95 per active member and annuitant (\$24 below the peer average cost of \$119, and slightly above the peer median), which is excellent cost performance despite a relatively higher number of transactions, higher complexity, and a higher cost environment.
- IMRF ranks 9th in overall service in the North American Peer Group (out of 44 public pension systems);
- IMRF scored significantly above the peer median in 11 of CEM's 14 measured activities.

The presentation was followed by discussion.

(18-08-04) (2018 Annual Economic Opportunity Investment Report) The Executive Director presented an overview of the 2018 Annual Illinois Economic Opportunity Investment Report. He reported under Public Act 96-0753, this report must be submitted to the Governor and General Assembly annually by September 1st.

It was moved by Mr. Wallace, seconded by Ms. Thompson, to approve submission of the 2018 Annual Economic Opportunity Investment Report.

Vote: Unanimous Voice Vote
Absent: None

(18-08-05) (Consent Agenda) The Chair presented an agenda consisting of a Consent Agenda. The following items remained on the Consent Agenda since no Board member asked for their removal.

Approval of Minutes

Regular Meeting 18-05-18

Schedules - Dated June 2018

Schedule A - Benefit award listing of retirement, temporary disability, death benefits, and refund of employee contributions processed during the preceding calendar month under Article 7 of the Illinois Pension Code.

July 31, 2018

**Illinois Municipal
Retirement Fund
Monthly Performance Report**

**Investment Measurement Service
Monthly Review**

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Market Environment
As of July 31, 2018

Index	Last Month	Year to Date	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Russell:3000 Index	3.32	6.64	16.39	12.18	12.83	10.68
S&P:500	3.72	6.47	16.24	12.52	13.12	10.67
Russell:2000 Index	1.74	9.54	18.73	12.04	11.33	10.39
MSCI:ACWI ex US	2.39	(1.46)	5.94	6.00	5.59	3.16
MSCI:EM	2.20	(4.61)	4.36	8.94	5.25	2.87
Blmbg:Aggregate	0.02	(1.59)	(0.80)	1.49	2.25	3.73
NCREIF:Total Index	0.60	4.16	7.23	8.10	9.72	6.29
Blmbg:Commodity Price Idx	(2.31)	(3.14)	1.19	(2.38)	(7.51)	(8.39)

Strong corporate earnings pumped up equities around the world in July and the S&P 500 returned nearly 4% for the month. According to FactSet, through August 10, with 91% of companies in the S&P 500 reporting actual results, 79% have reported positive EPS surprises and 72% have reported positive sales surprises. Consumers continued to express their optimism as retail sales grew 6.4% year-on-year for the month of July, the fastest pace since 2012. International markets (MSCI ACWI ex-U.S. Index: +2.4%) experienced similar gains on the back of strong corporate earnings, bouncing nicely after a difficult second quarter. Markets reacted favorably to President Trump and European Commission President Juncker agreeing to work toward eliminating tariffs and barriers on trade, cooling trade war tensions toward the end of the month. In bond markets the yield curve continued its flattening trend and the spread between the 2- and 10-year U.S. Treasuries reached a post-crisis low of 29 basis points to close the month.

Employment growth in the U.S. trailed expectations as the economy added 157,000 jobs in July compared to consensus expectations of 190,000. These jobs were enough to absorb new entrants into the labor market. The unemployment rate fell one tenth to 3.9%. The workforce participation rate held steady over the month at 62.9%. Wages inched up 0.3% month-over-month, in line with expectations and the year-over-year number remained steady at 2.7%.

Inflation inched higher in July with headline and core price indices increasing by 0.2% month-over-month. Year-over-year, headline CPI rose 2.9% and core gained 2.4%. The index for shelter rose 0.3% in July and accounted for almost 60% of the monthly gain in headline inflation. The energy index fell 0.5%.

The first estimate of second quarter GDP growth in the U.S. came in at 4.1%. Despite exceeding first quarter growth by 1.9%, analysts' expectations were slightly higher. Consumer spending fueled much of the expansion, responsible for 2.7 points of the growth. Net exports was the second largest contributor, adding 1.1 points.

*Due to a lag in the reporting of NCREIF Property Index returns, the monthly return shown is deduced from the most recent quarterly return. This monthly return, when compounded over three months, equates to the quarterly return.

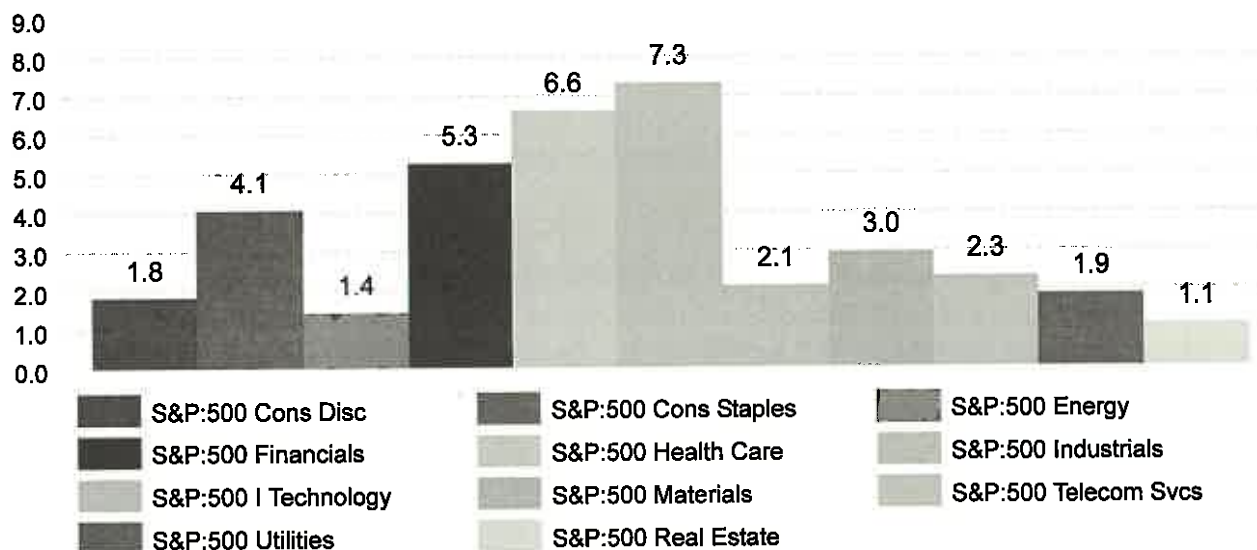
U.S. Equity Overview
As of July 31, 2018

Index	Last Month	Year to Date	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Russell:3000 Index	3.32	6.64	16.39	12.18	12.83	10.68
Russell:1000 Index	3.45	6.40	16.19	12.20	12.96	10.70
Russell:1000 Growth	2.94	10.40	22.84	14.81	15.83	12.37
Russell:1000 Value	3.96	2.20	9.54	9.51	10.04	8.95
Russell:Midcap Index	2.49	4.90	13.45	10.21	11.51	10.79
Russell:2000 Index	1.74	9.54	18.73	12.04	11.33	10.39
Russell:2000 Growth	1.72	11.58	22.91	11.08	12.38	11.17
Russell:2000 Value	1.77	7.31	14.37	12.92	10.19	9.52

Companies are still benefitting from tax cuts, and earnings are on pace to beat 20% growth for the second consecutive quarter. In response, U.S. equities hit the gas in July with the Russell 3000 Index up 3.32% for the month. A couple of the seemingly untouchable FAANG stocks ran into some trouble in July. Facebook fell over 20% on July 26 when the company announced slowing growth. Additionally, Netflix dropped over 15% in response to declining new user projections. The Russell 1000 Index (+3.5%) outperformed the Russell 2000 Index (+1.7%), and the Russell 1000 Value Index (+4.0%) outperformed the Russell 1000 Growth Index (+2.9%). Mid cap stocks (Russell Midcap Index) fell in between up 2.49% for the month.

For the first time in 2018, all 11 S&P 500 sectors produced positive returns for the month. Industrials led the way up 7.3%, followed by Health Care up 6.6%. Financials, specifically banks, had a strong month on the back of rising rates and strong earnings, returning 5.3%. Performance was relatively subdued in the Information Technology (+2.1%) sector as Facebook and Netflix struggled. Despite oil falling over 7% in July, Energy still managed to return 1.4% for the month.

S&P 500 Index Sector Returns



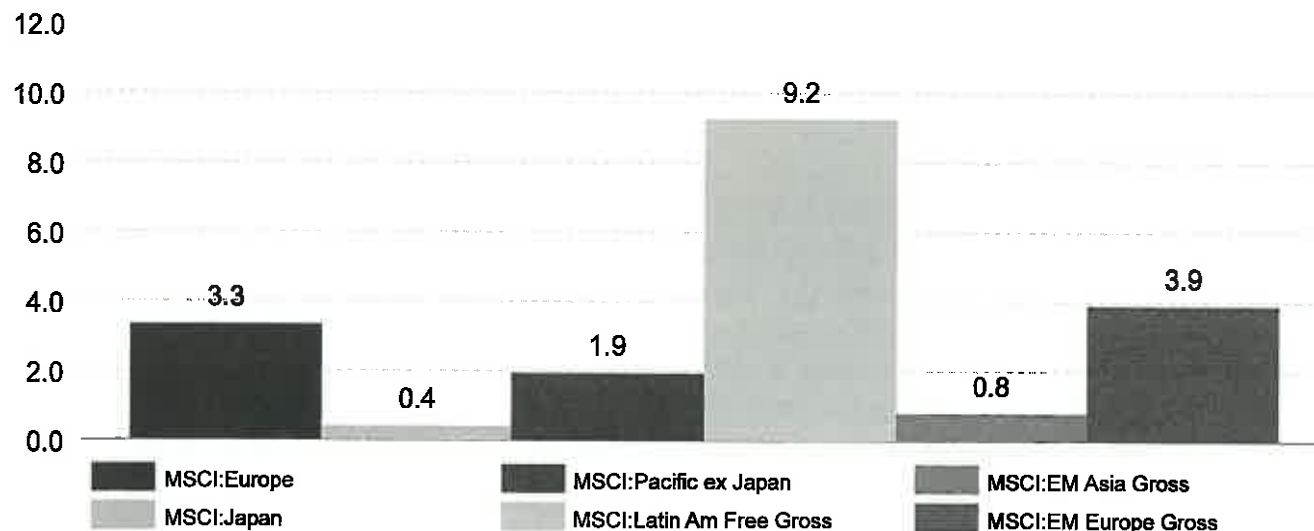
Non-U.S. Equity Overview
As of July 31, 2018

Index	Last Month	Year to Date	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
MSCI:ACWI ex US	2.39	(1.46)	5.94	6.00	5.59	3.16
MSCI:EAFE	2.46	(0.36)	6.40	5.03	5.86	3.43
MSCI:EAFE Hedged Net	2.82	2.85	10.11	6.06	9.19	6.08
MSCI:EM	2.20	(4.61)	4.36	8.94	5.25	2.87
MSCI:ACWI ex US Small Cap	0.70	(2.26)	7.54	8.89	8.08	6.32

Developed non-U.S. equities rebounded in July after posting two straight months of losses (MSCI EAFE Index: +2.5%). In the case of emerging markets, the index posted a gain after five consecutive months of negative returns (MSCI EM Index: +2.2%). While trade spats drove markets downward in recent periods, July provided a reprieve as the dominant trade headline was an encouraging meeting between President Trump and European Commission President Juncker in which they laid out a path "toward zero tariffs, zero non-tariff barriers, and zero subsidies on non-auto industrial goods." Non-U.S. equities also benefitted from a slowdown in dollar gains; although the dollar still rose against a broad basket of currencies, its gains were muted compared to prior months and the dollar actually fell against the euro. As a result, the difference between non-U.S. stock returns and those hedged to local currencies was minimal (MSCI EAFE Index: +2.5% vs. MSCI EAFE Hedged Net Index: +2.8%).

Latin America (MSCI Latin America Free Gross) was by far the best performing region, gaining 9.2% and outperforming all other regions by more than five percent. Brazil's rebound (MSCI Brazil Free Gross: +11.8%) powered the region higher as investors turned their focus away from economic weakness and toward upcoming elections. Mexico also contributed as a well-received presidential election boosted returns (MSCI Mexico Gross: +8.7%). Japan's return was the weakest among all regions, gaining only 0.4% (MSCI Japan). Inflation in the country remains well below the central bank's target despite policies aimed at boosting it, leading to concerns that GDP growth will stall if fiscal and monetary policy actions are ineffective.

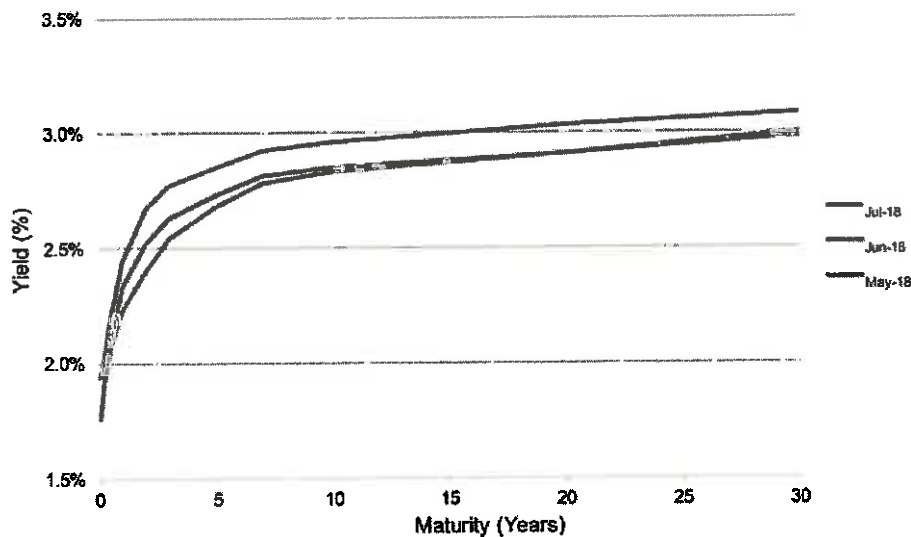
MSCI Regional Returns



Fixed Income Overview
As of July 31, 2018

Index	Last Month	Year to Date	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Blmbg:Aggregate	0.02	(1.59)	(0.80)	1.49	2.25	3.73
Blmbg:Long Gov/Credit	0.25	(4.74)	(0.80)	3.68	5.19	6.90
Blmbg:US Government	(0.41)	(1.46)	(1.20)	0.61	1.41	2.83
Blmbg:Credit	0.72	(2.29)	(0.66)	2.89	3.37	5.29
Blmbg:Mortgage Backed Sec	(0.11)	(1.06)	(0.41)	1.21	2.25	3.54
Blmbg:US TIPS	(0.48)	(0.51)	1.17	1.69	1.43	3.04
ML:US High Yield Cash Pay	1.12	1.18	2.46	6.13	5.33	8.25
CS:Leveraged Loan	0.83	3.23	4.72	4.59	4.19	5.12
3 Month T-Bill	0.16	0.97	1.43	0.73	0.45	0.35

Treasury Yield Curve



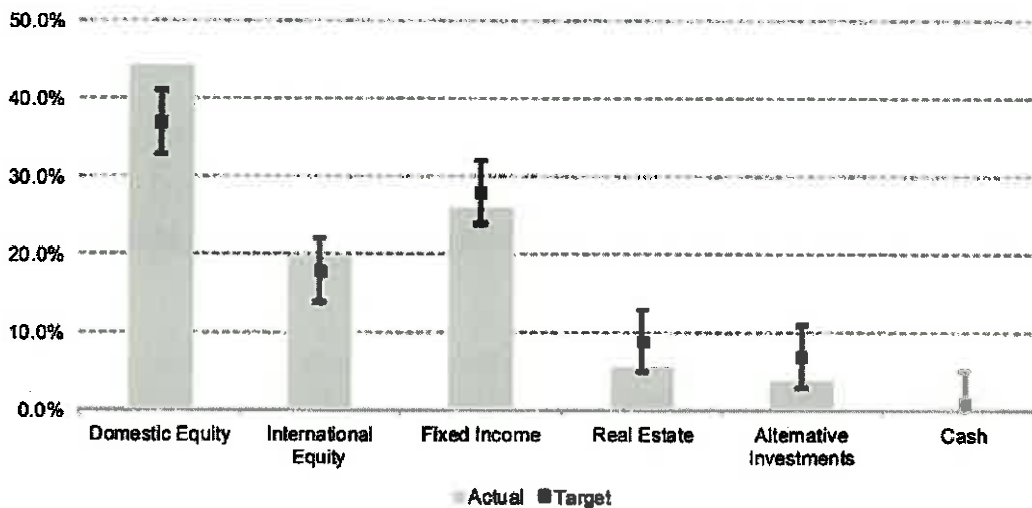
Strong economic data continued to drive U.S. government bond yields higher in July. Short-term Treasury yields were supported by the expectation of continued federal funds rate hikes with the market currently pricing in two additional 25 basis point increases by the end of 2018. The 20- and 30-year Treasuries both ended the month yielding over 3.00%, while the 10-year yield increased 11 basis points to end at 2.96%. Despite the broad rise of Treasury yields across the maturity spectrum, the slope of the curve continued to flatten. The spread between the 2-year and 10-year treasuries dropped four basis points to 0.29% and the 10-year vs. 30-year spread shaved one basis point during the month to end at 0.12%.

The Bloomberg Aggregate Index (0.0%) was flat in July. Investment grade credit spreads tightened 14 basis points during the month to 1.09% as new issues dropped to the lowest levels of the year. The combination of strong corporate earnings, healthy market sentiment, lighter issuance, and strong demand all bolstered performance in the sector. High Yield was among the strongest performing sectors during the month with the ML U.S. High Yield Cash Pay Index returning 1.1%. High Yield spreads tightened 27 basis points as investors exhibited a higher risk appetite in July. The Bloomberg US Government Index (-0.4%) produced a negative return on the back of rising rates and strong second quarter GDP figures. TIPS were among the worst performing sectors during the month with the Bloomberg U.S. TIPS Index down 0.5%.

Total Fund

The market value of the Total Fund was \$42.04 billion at the end of July, an increase of \$751.7 million from the prior month. The Fund returned 1.75% during the month, trailing the 1.77% return of its benchmark. Domestic Equity (+2.83%) underperformed its benchmark (+3.32%). International Equity (2.00%) underperformed its benchmark by 39 basis points. The Fixed Income composite returned 0.25% besting its benchmark return of 0.02%. Real Estate gained 0.70% in July, outperforming its benchmark by 10 basis points. Over the last three months, Alternatives (+3.38%) outperformed the benchmark return of 2.18%. For the trailing year, the fund is 144 basis points ahead of its benchmark, returning 9.52%.

Current policy states that when actual allocations of the asset classes differ by more than four percentage points from their policy target, a recommendation for rebalancing will be made to the Board of Trustees. As of July month end, Domestic Equity was 7.2% above the target. The Chief Investment Officer and Consultant do not recommend any rebalancing at this time.



U.S. Equity

The U.S. Equity composite returned 2.83% during July, trailing the Russell 3000 Index by 49 basis points. For the month, large caps outperformed small caps.

Large Cap: IMRF's Large Cap managers added 3.27% in July, falling behind the 3.45% return of the Russell 1000 Index. In aggregate, growth managers returned 2.07%, while the Russell 1000 Growth Index returned 2.94%. Value managers added 4.09% collectively, outperforming the 3.96% return of the Russell 1000 Value Index.

Small Cap: The Small Cap composite (+1.29%) lagged the Russell 2000 Index by 45 basis points in July. The growth managers collectively returned 0.62%, relative to the 1.72% return of the Russell 2000 Growth Index. The value managers returned 1.75% during the month, trailing the Russell 2000 Value Index by two basis points. The Micro Cap composite returned 1.96% in July.

Public Real Assets: The Public Real Assets portfolio managed by Brookfield and Cohen & Steers increased 2.31% in July, two basis points behind the custom benchmark.

International Equity

The International Equity composite returned 2.00% in July, 39 basis points behind its MSCI ACWI ex-U.S. benchmark (2.39%).

International Large Cap: International Large Cap managers collectively returned 2.35% in July, lagging the MSCI ACWI ex-U.S. Index by four basis points. International Large Cap Growth managers (+1.84%) outperformed the MSCI ACWI ex-U.S. Growth Index by 11 basis points. International Large Cap Value managers returned 2.54% for the month, 61 basis points behind the MSCI ACWI ex-U.S. Value Index.

International Small Cap and Emerging Markets: The International Small Cap managers returned 0.08% in July, 62 basis points behind the MSCI ACWI Small Cap ex-U.S. Index return of 0.70%. The Emerging Markets portfolio, managed by Genesis, gained 0.16% during the month, trailing the MSCI Emerging Markets Index by 212 basis points

Fixed Income

The Fixed Income composite returned 0.25% in July relative to the 0.02% return of the Bloomberg Aggregate Index.

Active Core: In aggregate, the Domestic Active Core managers were down 0.16% in July, 18 basis points behind the Bloomberg Aggregate Index.

Core Plus: Domestic Fixed Core Plus managers ended the month up 0.35%, outperforming the Bloomberg Aggregate Index by 33 basis points.

Bank Loans: The Bank Loans portfolio, managed by Barings, returned 0.76% for the month, underperforming the custom benchmark by five basis points.

Emerging Markets: The Emerging Markets Debt component, managed by Standish, gained 2.22% in July, 41 basis points ahead of the custom benchmark.

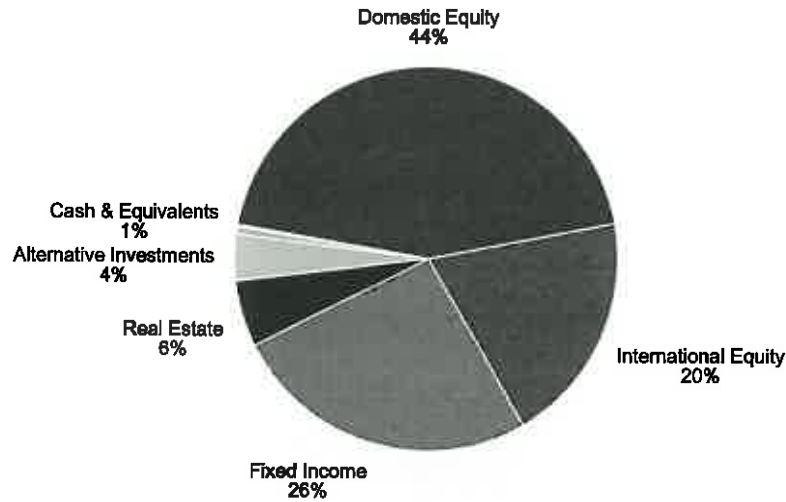
Opportunistic: The Opportunistic Fixed Income allocation, managed by Crescent, returned 0.93% in July, falling in line with the custom benchmark.

High Yield: The High Yield portfolio, managed by Mackay Shields, returned 1.22%, leading the ML High Yield Cash Pay Index return of 1.12%.

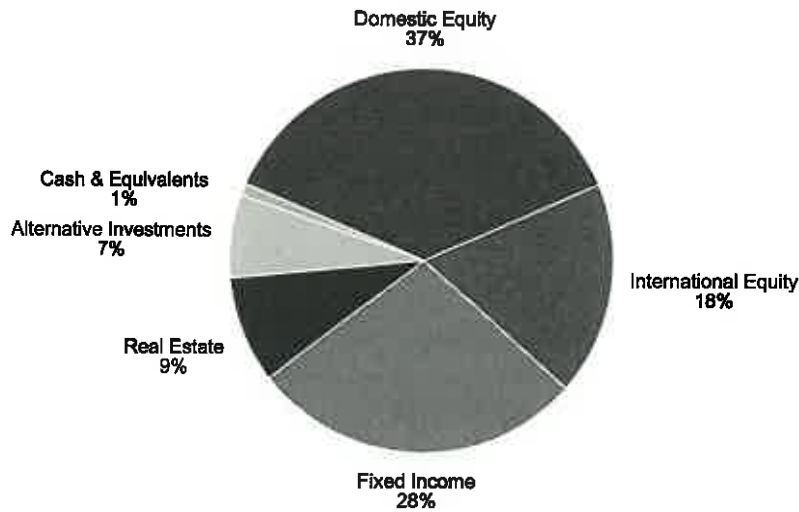
Actual vs Target Asset Allocation

The first chart below shows the Fund's asset allocation as of July 31, 2018. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

Actual Asset Allocation



Target Asset Allocation



Asset Class	\$Millions Actual	Percent Actual	Percent Target	Percent Difference	\$Millions Difference
Domestic Equity	18,590	44.2%	37.0%	7.2%	3,036
International Equity	8,260	19.6%	18.0%	1.6%	693
Fixed Income	10,902	25.9%	28.0%	(2.1%)	(869)
Real Estate	2,358	5.6%	9.0%	(3.4%)	(1,426)
Alternative Investments	1,658	3.9%	7.0%	(3.1%)	(1,284)
Cash & Equivalents	271	0.6%	1.0%	(0.4%)	(149)
Total	42,038	100.0%	100.0%		

* Current Month Target = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of July 31, 2018, with the distribution as of June 30, 2018.

Asset Distribution Across Investment Managers

	July 31, 2018		June 30, 2018	
	Market Value	Percent	Market Value	Percent
Domestic Equity*	\$18,590,049,458	44.22%	\$18,084,669,133	43.80%
Large Cap Growth				
NTGI S&P 500 Growth Idx	2,151,855,873	5.12%	2,080,198,837	5.04%
Sands	2,170,094,129	5.16%	2,153,948,585	5.22%
Large Cap Value				
Dodge & Cox	1,361,721,204	3.24%	1,305,015,401	3.16%
BMO	1,485,048,595	3.53%	1,432,070,893	3.47%
LSV	1,578,136,815	3.75%	1,519,931,782	3.68%
NTGI S&P 500 Value Idx	1,697,533,216	4.04%	1,631,489,526	3.95%
Large Cap Core				
NTGI MarketCap Index	3,810,205,533	9.06%	3,686,513,187	8.93%
Small Cap Growth				
Frontier	535,148,333	1.27%	534,572,811	1.29%
FIAM	1,126,146,412	2.68%	1,116,505,831	2.70%
Small Cap Value				
Channing	246,744,891	0.59%	238,176,303	0.58%
Dimensional Small Cap Value	635,571,526	1.51%	627,054,090	1.52%
Inv. Counselors of Maryland	717,964,052	1.71%	707,600,678	1.71%
Micro Cap				
Ativo	138,743,373	0.33%	136,384,143	0.33%
Dimensional Micro Cap	467,183,819	1.11%	457,839,564	1.11%
Public Real Assets				
Brookfield	151,865,753	0.36%	148,434,020	0.36%
Cohen & Steers	316,085,935	0.75%	308,933,484	0.75%
International Equity	\$8,259,554,774	19.65%	\$8,147,580,671	19.73%
International Large Cap Growth				
EARNEST Partners	660,739,742	1.57%	643,624,008	1.56%
William Blair	764,216,988	1.82%	755,791,155	1.83%
International Large Cap Value				
Brandes	639,529,164	1.52%	622,626,333	1.51%
Lombardia	1	0.00%	1	0.00%
Mondrian	534,278,558	1.27%	520,950,762	1.26%
Lazard	114,077,526	0.27%	112,454,004	0.27%
International Large Cap Core				
Arrowstreet	697,636,109	1.66%	683,461,747	1.66%
Brown	357,272,817	0.85%	346,045,950	0.84%
GlobeFlex	633,615,407	1.51%	666,764,921	1.61%
NTGI MSCI EAFE Index	2,276,602,066	5.42%	2,223,406,840	5.39%
Progress Intl Equity	315,311,607	0.75%	307,793,497	0.75%
International Small Cap				
Franklin Templeton	199,319,773	0.47%	200,154,817	0.48%
William Blair	292,823,355	0.70%	291,602,928	0.71%
Emerging Markets				
Genesis	774,131,663	1.84%	772,903,709	1.87%

* includes asset in equity transition account.

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of July 31, 2018, with the distribution as of June 30, 2018.

Asset Distribution Across Investment Managers

	July 31, 2018		June 30, 2018	
	Market Value	Percent	Market Value	Percent
Total Fixed Income	\$10,901,503,148	25.93%	\$10,883,376,219	26.36%
Domestic Fixed Core				
Brandes Core	341,264,015	0.81%	341,840,813	0.83%
EARNEST Partners	739,472,778	1.76%	740,537,945	1.79%
Piedmont Investment	740,167,632	1.76%	740,821,963	1.79%
Garcia Hamilton	725,293,619	1.73%	727,178,263	1.76%
Domestic Fixed Passive Core				
NTGI Blmbg Agg. Index	1,636,384,427	3.89%	1,636,012,937	3.96%
BlackRock US Debt	1,568,169,296	3.73%	1,567,598,553	3.80%
Domestic Fixed Core Plus				
LM Capital	845,430,319	2.01%	842,118,004	2.04%
Progress Fixed Income	881,432,630	2.10%	880,298,129	2.13%
Taplin, Canida, & Habacht	871,896,263	2.07%	868,186,361	2.10%
Western	1,021,113,877	2.43%	1,016,771,432	2.46%
Bank Loans				
Barings Global Loan Fund	581,734,046	1.38%	584,181,493	1.41%
Emerging Markets Debt				
Standish	200,118,669	0.48%	195,778,117	0.47%
Opportunistic Fixed Income				
Crescent	113,765,620	0.27%	114,490,837	0.28%
High Yield				
MacKay Shields	634,868,828	1.51%	627,286,306	1.52%
FIAM High Yield	391,129	0.00%	335,067	0.00%

* Non-Core Real Estate Funds funded since September 2011.

** Non-Core International Real Estate Funds funded since August 2014.

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of July 31, 2018, with the distribution as of June 30, 2018.

Asset Distribution Across Investment Managers

	July 31, 2018		June 30, 2018	
	Market Value	Percent	Market Value	Percent
Real Estate	\$2,357,580,270	5.61%	\$2,376,293,510	5.76%
Real Estate Core				
TA Buckhead Ind. Prop.	408,333,110	0.97%	408,333,110	0.99%
Barings Core Property Fund	93,703,294	0.22%	113,039,011	0.27%
Barings European Core Property	30,578,122	0.07%	30,512,788	0.07%
Blackstone Property Partners Europe	119,176,442	0.28%	118,921,807	0.29%
INVESCO Core RE	202,245,837	0.48%	200,216,037	0.48%
INVESCO Euro real estate	58,096,237	0.14%	51,065,048	0.12%
AEW Core Property Trust	234,559,321	0.56%	229,725,050	0.56%
CBRE US Core Property Trust	182,068,390	0.43%	178,261,183	0.43%
Real Estate Non-Core				
Artemis MWBE Spruce	121,629,395	0.29%	116,655,511	0.28%
Franklin Templeton EMREFF	25,349,671	0.06%	25,954,554	0.06%
Security Capital	51,085,228	0.12%	51,639,225	0.13%
Dune II	27,770,551	0.07%	27,770,551	0.07%
Non-Core Real Estate Funds*	707,815,373	1.68%	726,477,586	1.76%
Non-Core Intl Real Estate Funds**	91,251,255	0.22%	91,475,734	0.22%
Rockwood Fund VIII	594,321	0.00%	2,117,444	0.01%
Almanac ARS V	3,018,258	0.01%	3,823,404	0.01%
TA Fund IX	305,466	0.00%	305,466	0.00%
Alternative Investments	\$1,658,442,155	3.95%	\$1,624,641,935	3.94%
Absolute Return				
Aurora	941,479	0.00%	970,120	0.00%
Private Equity				
Abbott	325,264,759	0.77%	332,159,783	0.80%
Muller & Monroe ILPEFF	1	0.00%	1	0.00%
Muller & Monroe MPEFF	6,242,083	0.01%	6,001,172	0.01%
Pantheon	222,764,082	0.53%	223,051,736	0.54%
Private Equity Fund - Domestic	722,363,944	1.72%	694,087,396	1.68%
Private Equity Fund - International	84,591,073	0.20%	80,393,918	0.19%
Agriculture				
Premiere Partners IV	189,208,998	0.45%	189,518,637	0.46%
Timberland				
Forest Investment Assoc.	75,059,049	0.18%	75,059,049	0.18%
Unlisted Infrastructure				
Unlisted Infrastructure Funds	32,006,686	0.08%	23,400,123	0.06%
Cash & Equivalents	\$271,039,480	0.64%	\$169,873,080	0.41%
Total Fund	\$42,038,169,285	100.0%	\$41,286,434,547	100.0%

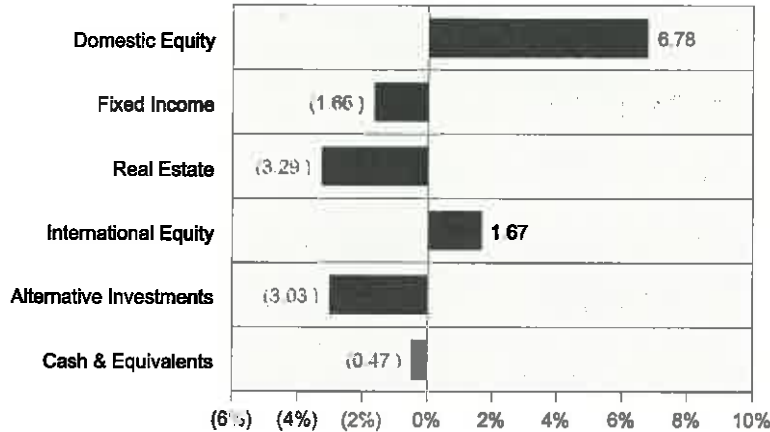
* Non-Core Real Estate Funds funded since September 2011.

** Non-Core International Real Estate Funds funded since August 2014.

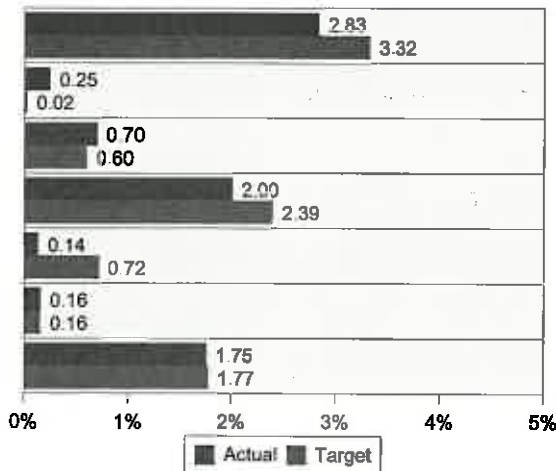
Monthly Total Fund Relative Attribution - July 31, 2018

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation Effect and Manager Selection Effect. The Asset Allocation Effect represents the excess return due to the actual total fund asset allocation differing from the target asset allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

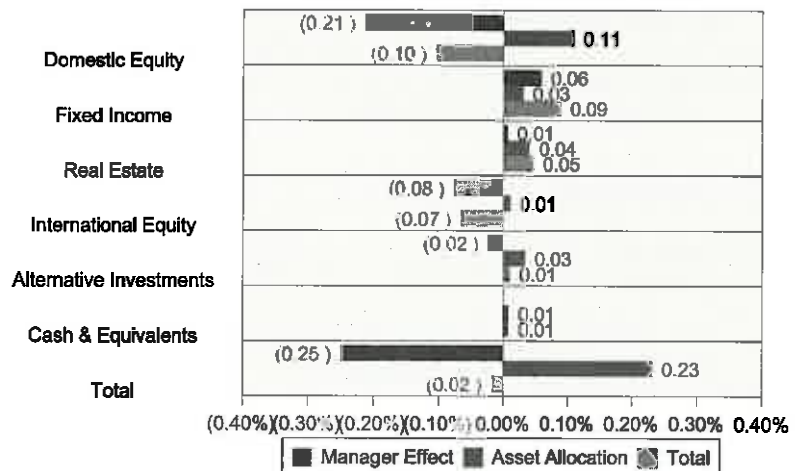
Asset Class Under or Overweighting



Actual vs Target Returns



Relative Attribution by Asset Class



Relative Attribution Effects for Month ended July 31, 2018

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	44%	37%	2.83%	3.32%	(0.21%)	0.11%	(0.10%)
Fixed Income	26%	28%	0.25%	0.02%	0.06%	0.03%	0.09%
Real Estate	6%	9%	0.70%	0.60%	0.01%	0.04%	0.05%
International Equity	20%	18%	2.00%	2.39%	(0.08%)	0.01%	(0.07%)
Alternative Investments	4%	7%	0.14%	0.72%	(0.02%)	0.03%	0.01%
Cash & Equivalents	1%	1%	0.16%	0.16%	0.00%	0.01%	0.01%
Total			1.75%	1.77%	(0.25%)	0.23%	(0.02%)

* Current Month Target = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.

Asset Class Returns

The table below details the rates of return for the fund's asset class composites over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last Month	Last 3 Months	Year to Date	Last 12 Months
Domestic Equity	2.83%	6.73%	7.87%	17.27%
Blended Benchmark**	3.32%	6.93%	6.64%	16.39%
Domestic Equity - Net	2.81%	6.67%	7.74%	17.03%
International Equity	2.00%	(1.96%)	(0.57%)	6.85%
MSCI ACWI x US (Net)	2.39%	(1.85%)	(1.46%)	5.94%
International Equity - Net	2.00%	(2.01%)	(0.71%)	6.51%
Fixed Income	0.25%	0.49%	(1.12%)	0.09%
Blmbg Aggregate Index	0.02%	0.61%	(1.59%)	(0.80%)
Fixed Income - Net	0.24%	0.47%	(1.18%)	(0.04%)
Real Estate	0.70%	1.43%	3.51%	8.39%
Blended Benchmark***	0.60%	1.81%	4.44%	7.53%
Real Estate - Net	0.70%	1.43%	3.51%	8.39%
Alternative Investments	0.14%	3.38%	5.96%	11.85%
Alternatives Custom Benchmark****	0.72%	2.18%	5.16%	9.00%
Alternative Investments - Net	0.14%	3.38%	5.88%	11.69%
Private Equity	0.20%	4.28%	7.86%	15.78%
Alternatives Custom Benchmark****	0.72%	2.18%	5.16%	9.00%
Agriculture	(0.16%)	(0.86%)	(2.94%)	(6.85%)
Blended Benchmark***	0.60%	1.81%	4.44%	7.53%
Timberland	(0.25%)	(0.50%)	(1.56%)	2.28%
Blended Benchmark***	0.60%	1.81%	4.44%	7.53%
Unlisted Infrastructure	0.00%	1.36%	-	-
Alternatives Custom Benchmark****	0.72%	2.18%	5.16%	9.00%
Total Fund	1.75%	2.81%	3.36%	9.52%
Total Fund - Net	1.72%	2.76%	3.24%	9.28%
Total Fund Benchmark	1.77%	2.70%	2.53%	8.08%

* Current Month Target = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Net, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.

** The Blended Benchmark is currently Russell 3000 Index. Returns prior to January 1, 2015, reflect those of the Dow Jones U.S. Total Stock Market Index.

*** The Blended Benchmark is currently ODCE Value Weighted Index. Returns between January 1, 2007 and December 31, 2012 reflect NPI+1%. Returns prior to January 1, 2007, reflect those of the Consumer Price Index +5%. Given that ODCE returns are updated quarterly, an approximation of the Index is used in the monthly reports.

**** The Alternatives Custom Benchmark is based on an annualized rate of return of 9.0%. Prior to July 1, 2010 the Benchmark was based on an annual return of 12.0%. Prior to 2004, the Benchmark was based on an annual return of 13.0%. Prior to 2003, it was based on an annual return of 15.0%.

Asset Class Returns

The table below details the rates of return for the fund's asset class composites over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last 36 Months	Last 60 Months	Last 120 Months	Since Inception
Domestic Equity	11.75%	12.55%	10.84%	11.78% ^(1/82)
Blended Benchmark**	12.18%	12.79%	10.74%	11.53% ^(1/82)
Domestic Equity - Net	11.51%	12.29%	10.58%	8.85% ^(1/05)
International Equity	6.91%	6.96%	4.47%	8.00% ^(9/86)
MSCI ACWI x US (Net)	6.00%	5.59%	3.16%	-
International Equity - Net	6.56%	6.62%	4.14%	6.01% ^(1/05)
Fixed Income	2.53%	3.12%	5.04%	8.23% ^(1/82)
Blmbg Aggregate Index	1.49%	2.25%	3.73%	7.68% ^(1/82)
Fixed Income - Net	2.38%	2.98%	4.89%	4.57% ^(1/05)
Real Estate - Net	9.56%	10.53%	5.36%	7.24% ^(1/05)
Blended Benchmark***	8.19%	9.92%	6.95%	7.70% ^(1/05)
Alternative Investments	8.88%	9.60%	6.40%	10.70% ^(2/86)
Alternatives Custom Benchmark****	9.00%	9.00%	9.57%	12.82% ^(2/86)
Alternative Investments - Net	8.61%	9.27%	6.11%	8.18% ^(1/05)
Private Equity	11.65%	12.34%	8.00%	12.89% ^(2/86)
Alternatives Custom Benchmark****	9.00%	9.00%	9.57%	12.82% ^(2/86)
Agriculture	3.70%	8.39%	8.95%	7.59% ^(10/97)
Blended Benchmark***	8.19%	9.92%	6.95%	7.54% ^(10/97)
Timberland	0.69%	3.95%	3.57%	7.80% ^(10/92)
Blended Benchmark***	8.19%	9.92%	6.95%	7.55% ^(10/92)
Unlisted Infrastructure	-	-	-	1.37% ^(4/18)
Alternatives Custom Benchmark****	9.00%	9.00%	9.57%	2.91% ^(4/18)
Total Fund	7.85%	8.47%	8.03%	9.99% ^(1/82)
Total Fund - Net	7.62%	8.24%	7.79%	7.34% ^(1/05)
Total Fund Benchmark	7.47%	8.04%	7.44%	7.05% ^(1/05)

* Current Month Target = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.

** The Blended Benchmark is currently Russell 3000 Index. Returns prior to January 1, 2015, reflect those of the Dow Jones U.S. Total Stock Market Index.

*** The Blended Benchmark is currently ODCE Value Weighted Index. Returns between January 1, 2007 and December 31, 2012 reflect NPI+1%. Returns prior to January 1, 2007, reflect those of the Consumer Price Index +5%. Given that ODCE returns are updated quarterly, an approximation of the Index is used in the monthly reports.

**** The Alternatives Custom Benchmark is based on an annualized rate of return of 9.0%. Prior to July 1, 2010 the Benchmark was based on an annual return of 12.0%. Prior to 2004, the Benchmark was based on an annual return of 13.0%. Prior to 2003, it was based on an annual return of 15.0%.

Large Cap Equity Returns

The table below details the rates of return for the fund's large cap growth and large cap value managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last Month	Last 3 Months	Year to Date	Last 12 Months
Large Cap Equity	3.27%	6.47%	7.50%	17.32%
Russell 1000 Index	3.45%	6.78%	6.40%	16.19%
Large Cap Growth	2.07%	8.87%	16.44%	24.62%
NTGI S&P 500 Growth Idx	3.44%	8.54%	10.89%	21.52%
S&P/Citi 500 Growth Index	3.44%	8.57%	10.97%	21.61%
NTGI S&P 500 Growth Idx - Net	3.44%	8.54%	10.89%	21.51%
Sands	0.75%	9.20%	22.52%	29.27%
LCG Blended Benchmark*	2.94%	8.48%	10.40%	22.84%
Russell 1000 Growth Index	2.94%	8.48%	10.40%	22.84%
Sands - Net	0.75%	9.15%	22.39%	29.00%
Large Cap Value	4.09%	4.57%	2.63%	13.16%
Dodge & Cox	4.50%	6.47%	5.55%	14.98%
LCV Blended Benchmark**	3.96%	4.83%	2.20%	9.54%
Russell 1000 Value Index	3.96%	4.83%	2.20%	9.54%
Dodge & Cox - Net	4.50%	6.40%	5.43%	14.73%
BMO	3.84%	3.82%	1.51%	13.74%
LCV Blended Benchmark**	3.96%	4.83%	2.20%	9.54%
Russell 1000 Value Index	3.96%	4.83%	2.20%	9.54%
BMO - Net	3.84%	3.76%	1.40%	13.49%
LSV	4.01%	3.22%	2.22%	14.24%
LCV Blended Benchmark**	3.96%	4.83%	2.20%	9.54%
Russell 1000 Value Index	3.96%	4.83%	2.20%	9.54%
LSV - Net	3.95%	3.16%	2.05%	13.98%
NTGI S&P 500 Value Idx	4.05%	5.02%	1.80%	10.51%
S&P/Citi 500 Value Index	4.05%	4.98%	1.74%	10.43%
NTGI S&P 500 Value Idx - Net	4.05%	5.01%	1.80%	10.50%
Large Cap Passive Core	3.36%	6.98%	6.72%	16.48%
NTGI MarketCap Idx	3.36%	6.98%	6.72%	16.48%
DJ U.S. Total Stock Market Index	3.34%	6.96%	6.70%	16.43%
NTGI MarketCap Idx - Net	3.35%	6.98%	6.71%	16.47%

* The LCG Blended Benchmark is currently the Russell 1000 Growth Index. Returns prior to January 1, 2006, reflect those of the S&P 500/Citigroup Growth Index.

** The LCV Blended Benchmark is currently the Russell 1000 Value Index. Returns prior to January 1, 2006, reflect those of the S&P 500/Citigroup Value Index.

Large Cap Equity Returns

The table below details the rates of return for the fund's large cap growth and large cap value managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last 36 Months	Last 60 Months	Last 120 Months	Since Inception
Large Cap Equity	12.24%	13.20%	10.91%	11.40% ^(1/82)
Russell 1000 Index	12.20%	12.96%	10.70%	11.71% ^(1/82)
Large Cap Growth	14.52%	15.31%	12.46%	12.03% ^(1/82)
NTGI S&P 500 Growth Idx	14.38%	15.61%	12.40%	7.91% ^(8/01)
S&P/Citi 500 Growth Index	14.41%	15.63%	12.38%	7.88% ^(8/01)
NTGI S&P 500 Growth Idx - Net	14.38%	15.60%	12.39%	9.94% ^(1/05)
Sands	15.52%	16.28%	15.43%	12.54% ^(11/03)
LCG Blended Benchmark*	14.81%	15.83%	12.37%	9.95% ^(11/03)
Russell 1000 Growth Index	14.81%	15.83%	12.37%	10.01% ^(11/03)
Sands - Net	15.26%	16.03%	15.16%	11.48% ^(1/05)
Large Cap Value	10.73%	11.77%	9.85%	10.53% ^(10/82)
Dodge & Cox	12.48%	12.88%	10.49%	10.07% ^(8/03)
LCV Blended Benchmark**	9.51%	10.04%	8.95%	8.57% ^(8/03)
Russell 1000 Value Index	9.51%	10.04%	8.95%	8.75% ^(8/03)
Dodge & Cox - Net	12.24%	12.66%	10.26%	8.38% ^(1/05)
BMO	9.88%	11.79%	9.51%	8.47% ^(2/01)
LCV Blended Benchmark**	9.51%	10.04%	8.95%	5.80% ^(2/01)
Russell 1000 Value Index	9.51%	10.04%	8.95%	6.86% ^(2/01)
BMO - Net	9.64%	11.55%	9.26%	8.69% ^(1/05)
LSV	11.07%	12.16%	10.90%	11.58% ^(2/03)
LCV Blended Benchmark**	9.51%	10.04%	8.95%	9.55% ^(2/03)
Russell 1000 Value Index	9.51%	10.04%	8.95%	9.56% ^(2/03)
LSV - Net	10.80%	11.88%	10.61%	8.86% ^(1/05)
NTGI S&P 500 Value Idx	10.23%	10.32%	8.79%	5.90% ^(8/99)
S&P/Citi 500 Value Index	10.13%	10.23%	8.73%	5.87% ^(8/99)
NTGI S&P 500 Value Idx - Net	10.23%	10.31%	8.78%	7.23% ^(1/05)
Large Cap Passive Core	12.27%	12.87%	10.72%	11.29% ^(1/85)
NTGI MarketCap Idx	12.27%	12.87%	10.74%	11.06% ^(2/85)
DJ U.S. Total Stock Market Index	12.17%	12.77%	10.74%	11.00% ^(2/85)
NTGI MarketCap Idx - Net	12.27%	12.86%	10.73%	8.85% ^(1/05)

* The LCG Blended Benchmark is currently the Russell 1000 Growth Index. Returns prior to January 1, 2006, reflect those of the S&P 500/Citigroup Growth Index.

** The LCV Blended Benchmark is currently the Russell 1000 Value Index. Returns prior to January 1, 2006, reflect those of the S&P 500/Citigroup Value Index.

Small Cap Equity Returns

The table below details the rates of return for the fund's small cap growth, small cap value, and micro cap managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last Month	Last 3 Months	Year to Date	Last 12 Months
Small Cap Equity	1.29%	8.03%	9.95%	18.68%
Russell 2000 Index	1.74%	8.69%	9.54%	18.73%
Small Cap Growth	0.62%	7.19%	11.97%	19.56%
Frontier	0.11%	10.21%	19.21%	28.55%
Russell 2000 Growth Index	1.72%	8.97%	11.58%	22.91%
Frontier - Net	(0.01%)	10.08%	18.78%	27.93%
FIAM	0.86%	5.93%	9.09%	16.03%
Russell 2000 Growth Index	1.72%	8.97%	11.58%	22.91%
FIAM - Net	0.86%	5.80%	8.87%	15.66%
Small Cap Value	1.75%	8.41%	8.05%	18.01%
Channing	3.60%	6.89%	7.04%	14.71%
Russell 2000 Value Index	1.77%	8.34%	7.31%	14.37%
Channing - Net	3.47%	6.76%	6.65%	14.15%
DFA Small Cap Value	1.36%	7.72%	7.04%	16.28%
Russell 2000 Value Index	1.77%	8.34%	7.31%	14.37%
DFA Small Cap Value - Net	1.36%	7.59%	6.78%	15.62%
Inv. Counselors of Maryland	1.46%	9.56%	9.32%	20.80%
Russell 2000 Value Index	1.77%	8.34%	7.31%	14.37%
Inv. Couns. of Maryland - Net	1.46%	9.45%	9.10%	20.14%
Micro Cap	1.96%	9.29%	9.06%	17.70%
Ativo	1.71%	7.59%	4.46%	8.49%
Russell Microcap Index	(0.07%)	8.53%	10.64%	20.80%
Russell 2000 Growth Index	1.72%	8.97%	11.58%	22.91%
Russell 2000 Index	1.74%	8.69%	9.54%	18.73%
Ativo - Net	1.55%	7.43%	3.97%	7.82%
DFA Micro Cap	2.04%	9.81%	10.50%	20.74%
Russell 2000 Value Index	1.77%	8.34%	7.31%	14.37%
Russell 2000 Index	1.74%	8.69%	9.54%	18.73%
DFA Micro Cap - Net	2.04%	9.68%	10.23%	20.14%
Public Real Assets	2.31%	4.07%	1.89%	4.21%
Public Real Assets Benchmark (1)	2.33%	3.57%	0.51%	1.84%
Brookfield Public Global Inf	2.31%	4.43%	1.98%	1.55%
Dow Jones Global Infra Comp Idx	2.53%	5.23%	1.19%	0.84%
Brookfield Public Global Inf - Net	2.31%	4.29%	1.70%	1.16%
Cohen & Steers Public Global Inf	2.32%	3.89%	1.85%	5.53%
FTSE GI Core Infr 50/50 N	2.26%	3.02%	0.27%	2.16%
Cohen & St Public Global Inf - Net	2.32%	3.78%	1.63%	5.22%

(1) 1/3 Dow Jones Global Infrastructure Composite Index + 2/3 FTSE Global Core Infrastructure 50/50 Net Tax Index

Small Cap Equity Returns

The table below details the rates of return for the fund's small cap growth, small cap value, and micro cap managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last 36 Months	Last 60 Months	Last 120 Months	Since Inception
Small Cap Equity	10.74%	11.05%	11.30%	12.61% (7/88)
Russell 2000 Index	12.04%	11.33%	10.39%	9.89% (7/88)
Small Cap Growth	8.94%	11.91%	11.31%	13.26% (7/88)
Frontier	11.21%	12.55%	12.01%	13.48% (8/88)
Russell 2000 Growth Index	11.08%	12.38%	11.17%	8.60% (8/88)
Frontier - Net	10.60%	11.94%	11.32%	10.27% (1/05)
FIAM	8.56%	12.56%	11.89%	13.83% (8/88)
Russell 2000 Growth Index	11.08%	12.38%	11.17%	8.60% (8/88)
FIAM - Net	7.98%	12.00%	11.32%	11.33% (1/05)
Small Cap Value	13.60%	11.39%	11.34%	12.41% (8/88)
Channing	11.43%	11.17%	-	12.83% (7/11)
Russell 2000 Value Index	12.92%	10.19%	9.52%	11.24% (7/11)
Channing - Net	10.83%	10.66%	-	12.20% (7/11)
DFA Small Cap Value	12.07%	10.59%	11.92%	12.86% (2/96)
Russell 2000 Value Index	12.92%	10.19%	9.52%	10.21% (2/96)
DFA Small Cap Value - Net	11.48%	10.05%	11.38%	8.86% (1/05)
Inv. Counselors of Maryland	16.86%	13.21%	11.63%	12.39% (6/88)
Russell 2000 Value Index	12.92%	10.19%	9.52%	9.83% (5/98)
Inv. Couns. of Maryland - Net	16.25%	12.69%	11.12%	9.71% (1/05)
Micro Cap	8.34%	8.62%	10.25%	12.04% (7/84)
Ativo	9.09%	11.44%	-	13.93% (10/10)
Russell Microcap Index	11.67%	11.11%	10.12%	14.04% (10/10)
Russell 2000 Growth Index	11.08%	12.38%	11.17%	14.81% (10/10)
Russell 2000 Index	12.04%	11.33%	10.39%	13.78% (10/10)
Ativo - Net	8.39%	10.67%	-	13.12% (10/10)
DFA Micro Cap	14.83%	12.75%	12.28%	11.73% (8/87)
Russell 2000 Value Index	12.92%	10.19%	9.52%	10.33% (8/87)
Russell 2000 Index	12.04%	11.33%	10.39%	9.25% (8/87)
DFA Micro Cap - Net	14.26%	12.19%	11.73%	9.07% (1/05)
Public Real Assets	-	-	-	4.21% (8/17)
Public Real Assets Benchmark (1)	-	-	-	1.84% (8/17)
Brookfield Public Global Inf	-	-	-	1.55% (8/17)
Dow Jones Global Infra Comp Idx	4.42%	5.97%	8.32%	0.84% (8/17)
Brookfield Public Global Inf - Net	-	-	-	1.16% (8/17)
Cohen & Steers Public Global Inf	-	-	-	5.53% (8/17)
FTSE GI Core Infr 50/50 N	7.15%	7.62%	-	2.16% (8/17)
Cohen & St Public Global Inf - Net	-	-	-	5.22% (8/17)

(1) 1/3 Dow Jones Brookfield Global Infrastructure Composite Index + 2/3 FTSE Global Core Infrastructure 50/50 Net Tax Index

International Equity Returns

The table below details the rates of return for the fund's international large cap growth and international large cap value managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last Month	Last 3 Months	Year to Date	Last 12 Months
Intl Large Cap Equity	2.35%	(1.42%)	0.08%	7.08%
MSCI ACWI ex-US Index	2.39%	(1.85%)	(1.46%)	5.94%
Intl Large Cap Growth	1.84%	(1.17%)	(0.61%)	6.70%
EARNEST Partners	2.61%	(1.47%)	(1.44%)	4.02%
MSCI ACWI ex-US Index	2.39%	(1.85%)	(1.46%)	5.94%
MSCI ACWI ex-US Growth	1.73%	(0.35%)	(0.32%)	8.44%
EARNEST Partners - Net	2.61%	(1.47%)	(1.44%)	3.97%
William Blair	1.11%	(0.99%)	0.04%	9.04%
MSCI ACWI ex-US Index	2.39%	(1.85%)	(1.46%)	5.94%
MSCI ACWI ex-US Growth	1.73%	(0.35%)	(0.32%)	8.44%
William Blair - Net	1.11%	(0.99%)	(0.13%)	8.66%
Intl Large Cap Value	2.54%	(2.79%)	0.44%	6.43%
Brandes	2.71%	(1.79%)	4.19%	9.08%
MSCI ACWI ex-US Index	2.39%	(1.85%)	(1.46%)	5.94%
MSCI ACWI ex-US Value	3.15%	(3.03%)	(1.91%)	4.44%
Brandes - Net	2.66%	(1.84%)	4.02%	8.84%
Mondrian	2.56%	(4.01%)	(2.79%)	3.89%
MSCI ACWI ex-US Index	2.39%	(1.85%)	(1.46%)	5.94%
MSCI ACWI ex-US Value	3.15%	(3.03%)	(1.91%)	4.44%
Mondrian - Net	2.56%	(4.13%)	(3.02%)	3.39%
Lazard	1.44%	(2.35%)	(2.85%)	4.99%
MSCI ACWI ex-US Index	2.39%	(1.85%)	(1.46%)	5.94%
MSCI ACWI ex-US Value	3.15%	(3.03%)	(1.91%)	4.44%
Lazard - Net	1.44%	(2.42%)	(2.97%)	4.74%

International Equity Returns

The table below details the rates of return for the fund's international large cap growth and international large cap value managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last 36 Months	Last 60 Months	Last 120 Months	Since Inception
Intl Large Cap Equity	6.56%	7.04%	4.37%	8.02% (8/88)
MSCI ACWI ex-US Index	6.00%	5.59%	3.16%	-
Intl Large Cap Growth	7.39%	6.83%	4.24%	8.94% (8/02)
EARNEST Partners	7.88%	6.05%	5.21%	9.82% (10/04)
MSCI ACWI ex-US Index	6.00%	5.59%	3.16%	6.37% (10/04)
MSCI ACWI ex-US Growth	7.46%	7.15%	3.98%	7.30% (10/04)
EARNEST Partners - Net	7.78%	5.89%	4.88%	8.49% (1/05)
William Blair	6.94%	7.52%	5.42%	10.21% (10/02)
MSCI ACWI ex-US Index	6.00%	5.59%	3.16%	8.62% (10/02)
MSCI ACWI ex-US Growth	7.46%	7.15%	3.98%	8.95% (10/02)
William Blair - Net	6.55%	7.13%	5.03%	6.80% (1/05)
Intl Large Cap Value	5.29%	6.40%	3.55%	9.11% (10/95)
Brandes	6.19%	7.18%	4.10%	9.43% (1/98)
MSCI ACWI ex-US Index	6.00%	5.59%	3.16%	5.40% (1/98)
MSCI ACWI ex-US Value	5.48%	4.94%	3.24%	-
Brandes - Net	5.95%	6.91%	3.83%	4.94% (1/05)
Mondrian	4.43%	5.75%	-	6.10% (4/12)
MSCI ACWI ex-US Index	6.00%	5.59%	3.16%	5.91% (4/12)
MSCI ACWI ex-US Value	5.48%	4.94%	3.24%	5.51% (4/12)
Mondrian - Net	3.91%	5.23%	-	5.60% (4/12)
Lazard	4.72%	5.71%	-	7.10% (4/12)
MSCI ACWI ex-US Index	6.00%	5.59%	3.16%	5.91% (4/12)
MSCI ACWI ex-US Value	5.48%	4.94%	3.24%	5.51% (4/12)
Lazard - Net	4.31%	5.22%	-	6.52% (4/12)

International Equity Returns

The table below details the rates of return for the fund's international large cap core, international small cap, and emerging markets managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last Month	Last 3 Months	Year to Date	Last 12 Months
Intl Large Cap Active Core	2.57%	(1.53%)	0.23%	8.14%
Arrowstreet	2.07%	(2.81%)	(0.13%)	7.42%
MSCI ACWI ex-US Index	2.39%	(1.85%)	(1.46%)	5.94%
Arrowstreet - Net	2.07%	(2.92%)	(0.36%)	6.94%
Brown	3.24%	2.81%	3.37%	10.88%
MSCI ACWI ex-US Index	2.39%	(1.85%)	(1.46%)	5.94%
Brown - Net	3.24%	2.81%	3.24%	9.98%
GlobeFlex	2.72%	(2.94%)	(1.81%)	6.32%
MSCI ACWI ex-US Index	2.39%	(1.85%)	(1.46%)	5.94%
GlobeFlex - Net	2.72%	(3.02%)	(1.98%)	5.96%
Progress Intl Equity	2.44%	(0.40%)	1.97%	10.65%
Custom Benchmark	2.39%	(1.85%)	(1.46%)	6.91%
MSCI ACWI ex-US Index	2.39%	(1.85%)	(1.46%)	5.94%
Progress Intl Equity - Net	2.44%	(0.52%)	1.72%	10.12%
Intl Large Cap Pass. Core	2.39%	(0.60%)	0.23%	6.78%
NTGI MSCI EAFE Idx	2.39%	(0.60%)	0.23%	6.78%
MSCI EAFE Index	2.46%	(1.07%)	(0.36%)	6.40%
NTGI EAFE Idx - Net	2.39%	(0.61%)	0.22%	6.77%
International Small Cap	0.08%	(3.13%)	(2.43%)	6.68%
Franklin Templeton	(0.42%)	(3.84%)	(1.83%)	6.78%
ACWI Small Cap ex US	0.70%	(3.04%)	(2.26%)	7.54%
Franklin Templeton - Net	(0.42%)	(4.02%)	(2.18%)	6.04%
William Blair	0.42%	(2.64%)	(3.04%)	6.46%
ACWI Small Cap ex US	0.70%	(3.04%)	(2.26%)	7.54%
Intl SC Blended Benchmark	0.70%	(3.04%)	(2.26%)	7.54%
William Blair - Net	0.42%	(2.64%)	(3.41%)	5.67%
Emerging Markets	0.16%	(5.95%)	(5.02%)	4.77%
Genesis	0.16%	(5.95%)	(5.02%)	4.77%
MSCI Emerging Markets Index	2.28%	(5.35%)	(4.37%)	4.74%
Genesis - Net	0.16%	(6.05%)	(5.31%)	4.20%

Brown and GlobeFlex moved to International Large Cap Active Core April 1, 2011.

Progress Custom Benchmark is a comprised of each manager's weighted benchmark until 201712.

after 201712 the benchmark is MSCI ACWI ex US - Net.

Intl SC Blended Benchmark consists of the S&P Developed Ex-U.S. Small Cap Index through May 31, 2011 and the MSCI ACWI Ex-U.S. Small Cap Index thereafter.

International Equity Returns

The table below details the rates of return for the fund's international large cap core, international small cap, and emerging markets managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last 36 Months	Last 60 Months	Last 120 Months	Since Inception
Intl Large Cap Active Core	8.37%	8.77%	6.84%	5.42% (2/08)
Arrowstreet	7.99%	8.94%	6.84%	5.46% (3/08)
MSCI ACWI ex-US Index	6.00%	5.59%	3.16%	2.34% (3/08)
Arrowstreet - Net	7.49%	8.44%	6.33%	4.97% (3/08)
Brown	6.67%	9.01%	7.09%	8.53% (10/04)
MSCI ACWI ex-US Index	6.00%	5.59%	3.16%	6.37% (10/04)
Brown - Net	5.53%	7.88%	6.33%	6.93% (1/05)
GlobeFlex	9.41%	8.65%	4.72%	5.66% (3/08)
MSCI ACWI ex-US Index	6.00%	5.59%	3.16%	4.06% (3/08)
GlobeFlex - Net	8.99%	8.22%	4.29%	5.21% (3/08)
Progress Intl Equity	8.97%	-	-	5.71% (7/14)
Custom Benchmark	7.69%	-	-	4.27% (7/14)
MSCI ACWI ex-US Index	6.00%	5.59%	3.16%	2.93% (7/14)
Progress Intl Equity - Net	8.47%	-	-	5.25% (7/14)
Intl Large Cap Pass. Core	5.44%	6.26%	3.84%	3.67% (1/00)
NTGI MSCI EAFE Idx	5.44%	6.26%	3.83%	4.04% (2/00)
MSCI EAFE Index	5.03%	5.86%	3.43%	3.65% (2/00)
NTGI EAFE Idx - Net	5.43%	6.26%	3.82%	5.33% (1/05)
International Small Cap	8.42%	8.07%	4.76%	5.39% (12/05)
Franklin Templeton	8.24%	8.21%	-	7.59% (8/11)
ACWI Small Cap ex US	8.89%	8.08%	6.32%	5.96% (8/11)
Franklin Templeton - Net	7.46%	7.47%	-	6.84% (8/11)
William Blair	8.52%	7.92%	-	10.70% (8/10)
ACWI Small Cap ex US	8.89%	8.08%	6.32%	8.42% (8/10)
Intl SC Blended Benchmark	8.89%	8.08%	5.49%	8.84% (8/10)
William Blair - Net	7.70%	7.10%	-	9.87% (8/10)
Emerging Markets	9.34%	5.46%	5.71%	9.16% (2/82)
Genesis	9.34%	5.46%	5.71%	11.52% (5/04)
MSCI Emerging Markets Index	9.35%	5.63%	3.22%	9.49% (5/04)
Genesis - Net	8.70%	4.86%	5.09%	9.45% (1/05)

Brown and GlobeFlex moved to International Large Cap Active Core April 1, 2011.

Progress Custom Benchmark is a comprised of each manager's weighted benchmark until 201712. after 201712 the benchmark is MSCI ACWI ex US - Net.

Intl SC Blended Benchmark consists of the S&P Developed Ex-U.S. Small Cap Index through May 31, 2011 and the MSCI ACWI Ex-U.S. Small Cap Index thereafter.

Fixed Income Returns

The table below details the rates of return for the fund's domestic fixed core managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last Month	Last 3 Months	Year to Date	Last 12 Months
Dom. Fixed Active Core	(0.16%)	0.52%	(1.10%)	0.09%
Brandes Core*	(0.17%)	0.68%	(1.08%)	(0.77%)
Blmbg Aggregate Index	0.02%	0.61%	(1.59%)	(0.80%)
Brandes Core - Net	(0.17%)	0.68%	(1.08%)	(0.77%)
EARNEST Partners	(0.14%)	0.40%	(1.37%)	(0.38%)
Blmbg Aggregate Index	0.02%	0.61%	(1.59%)	(0.80%)
EARNEST Partners - Net	(0.18%)	0.37%	(1.48%)	(0.52%)
Piedmont	(0.09%)	0.46%	(1.36%)	(0.37%)
Blmbg Aggregate Index	0.02%	0.61%	(1.59%)	(0.80%)
Piedmont - Net	(0.09%)	0.46%	(1.43%)	(0.51%)
Garcia Hamilton	(0.26%)	0.62%	(0.54%)	1.06%
Blmbg Aggregate Index	0.02%	0.61%	(1.59%)	(0.80%)
Garcia Hamilton	(0.26%)	0.62%	(0.59%)	0.99%
Dom. Fixed Passive Core	0.03%	0.62%	(1.56%)	(0.77%)
BlackRock US Debt	0.04%	0.65%	(1.55%)	(0.72%)
Blmbg Aggregate Index	0.02%	0.61%	(1.59%)	(0.80%)
BlackRock US Debt - Net	0.04%	0.65%	(1.55%)	(0.72%)
NTGI Blmbg Agg. Index	0.02%	0.59%	(1.57%)	(0.81%)
Blmbg Aggregate Index	0.02%	0.61%	(1.59%)	(0.80%)
NTGI Blmbg Agg. Index - Net	0.02%	0.59%	(1.58%)	(0.82%)

* Brandes changed to a Core mandate from Core Plus on 01/01/2018. Performance shown is Brandes full SI history.

Fixed Income Returns

The table below details the rates of return for the fund's domestic fixed core managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last 36 Months	Last 60 Months	Last 120 Months	Since Inception
Dom. Fixed Active Core	2.03%	2.78%	4.49%	4.40% (4/01)
Brandes Core *	-	-	-	0.87% (3/16)
Blmbg Aggregate Index	1.49%	2.25%	3.73%	1.00% (3/16)
Brandes Core - Net	-	-	-	0.87% (3/16)
EARNEST Partners	1.85%	2.73%	4.44%	4.31% (5/05)
Blmbg Aggregate Index	1.49%	2.25%	3.73%	3.86% (5/05)
EARNEST Partners - Net	1.68%	2.54%	4.23%	4.11% (5/05)
Piedmont	2.04%	2.71%	4.29%	4.12% (6/05)
Blmbg Aggregate Index	1.49%	2.25%	3.73%	3.80% (6/05)
Piedmont - Net	1.90%	2.56%	4.12%	3.93% (6/05)
Garcia Hamilton	2.26%	-	-	2.14% (6/15)
Blmbg Aggregate Index	1.49%	2.25%	3.73%	1.28% (6/15)
Garcia Hamilton	2.16%	-	-	2.05% (6/15)
Dom. Fixed Passive Core	1.55%	2.31%	3.70%	5.86% (1/90)
BlackRock US Debt	1.60%	-	-	2.37% (10/13)
Blmbg Aggregate Index	1.49%	2.25%	3.73%	2.24% (10/13)
BlackRock US Debt - Net	1.60%	-	-	2.37% (10/13)
NTGI Blmbg Agg. Index	1.50%	2.28%	3.68%	5.91% (2/90)
Blmbg Aggregate Index	1.49%	2.25%	3.73%	5.90% (2/90)
NTGI Blmbg Agg. Index - Net	1.49%	2.28%	3.68%	3.80% (1/05)

* Brandes changed to a Core mandate from Core Plus on 01/01/2018. Performance shown is Brandes full SI history.

Fixed Income Returns

The table below details the rates of return for the fund's domestic fixed core plus and high yield managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last Month	Last 3 Months	Year to Date	Last 12 Months
Domestic Fixed Core Plus	0.35%	0.44%	(1.59%)	(0.37%)
LM Capital	0.39%	0.39%	(1.75%)	(0.78%)
Bimbg Aggregate Index	0.02%	0.61%	(1.59%)	(0.80%)
LM Capital - Net	0.35%	0.35%	(1.87%)	(0.94%)
Progress Fixed Income	0.13%	0.63%	(1.19%)	0.03%
Bimbg Aggregate Index	0.02%	0.61%	(1.59%)	(0.80%)
Progress Fixed Inc. - Net	0.13%	0.54%	(1.36%)	(0.30%)
BMO-TCH	0.43%	0.68%	(1.18%)	0.47%
Bimbg Aggregate Index	0.02%	0.61%	(1.59%)	(0.80%)
BMO-TCH. - Net	0.43%	0.64%	(1.27%)	0.37%
Western	0.43%	0.12%	(2.14%)	(0.84%)
Bimbg Aggregate Index	0.02%	0.61%	(1.59%)	(0.80%)
Western - Net	0.43%	0.08%	(2.20%)	(0.98%)
Bank Loans	0.76%	0.77%	2.65%	4.24%
Barings Global Loan Fund	0.76%	0.77%	2.65%	4.24%
Custom Benchmark	0.81%	1.05%	3.17%	4.70%
Barings Global Loan Fund - Net	0.76%	0.77%	2.65%	4.19%
Emerging Markets	2.22%	(4.50%)	(4.97%)	(2.03%)
Standish	2.22%	(4.50%)	(4.97%)	(2.03%)
Custom Benchmark	1.81%	(2.86%)	(3.40%)	(1.26%)
Standish - Net	2.22%	(4.59%)	(5.14%)	(2.37%)
Opportunistic Fixed Income	0.93%	1.35%	1.05%	2.18%
Crescent	0.93%	1.35%	1.05%	2.18%
Custom Benchmark	0.93%	1.24%	2.06%	3.46%
Crescent - Net	0.93%	1.23%	0.70%	1.59%
High Yield	1.22%	1.30%	1.30%	3.37%
Mackay Shields	1.21%	1.29%	1.29%	3.28%
ML High Yield Cash Pay Index	1.12%	1.46%	1.18%	2.46%
Mackay Shields - Net	1.21%	1.20%	1.11%	2.92%

Taplin, Canida, & Habacht moved to Core Plus October 1, 2010.

Barings Custom Benchmark is comprised of the Credit Suisse US Leveraged Loan Index and the Credit Suisse Western European Leveraged Loan Index, weighted by the portfolio's market value to each sector.

Standish Custom Benchmark is 50% JPM GBI-EM Index, 25% JPM EMBI Global Index and 25% JPM Corporate EMBI Diversified Index.

Crescent Custom Benchmark is 50% ML U.S. High Yield Master II Index and 50% S&P/LSTA Leveraged Loan Index.

Fixed Income Returns

The table below details the rates of return for the fund's domestic fixed core plus and high yield managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended July 31, 2018

	Last 36 Months	Last 60 Months	Last 120 Months	Since Inception
Domestic Fixed Core Plus	2.44%	3.20%	5.04%	8.07% (1/82) +
LM Capital	2.16%	2.89%	4.68%	4.65% (5/05)
Bimbg Aggregate Index	1.49%	2.25%	3.73%	3.86% (5/05)
LM Capital - Net	1.98%	2.72%	4.51%	4.48% (5/05)
Progress Fixed Income	2.37%	2.97%	4.63%	4.69% (1/06)
Bimbg Aggregate Index	1.49%	2.25%	3.73%	3.94% (1/06)
Progress Fixed Inc. - Net	2.07%	2.65%	4.27%	4.35% (1/06)
BMO-TCH	3.21%	3.75%	5.28%	4.83% (5/05)
Bimbg Aggregate Index	1.49%	2.25%	3.73%	3.86% (5/05)
BMO-TCH - Net	3.07%	3.61%	5.15%	4.70% (5/05)
Western	2.82%	3.65%	5.74%	5.27% (11/01)
Bimbg Aggregate Index	1.49%	2.25%	3.73%	4.08% (11/01)
Western - Net	2.68%	3.51%	5.59%	4.64% (1/05)
Bank Loans	5.08%	-	-	4.66% (8/14)
Barings Global Loan Fund	5.08%	-	-	4.66% (8/14)
Custom Benchmark	4.69%	-	-	4.16% (8/14)
Barings Global Loan Fund - Net	4.68%	-	-	4.21% (8/14)
Emerging Markets	4.35%	-	-	1.71% (8/14)
Standish	4.35%	-	-	1.71% (8/14)
Custom Benchmark	4.24%	1.95%	4.38%	0.89% (8/14)
Standish - Net	3.99%	-	-	1.38% (8/14)
Opportunistic Fixed Income	4.54%	-	-	3.36% (9/14)
Crescent	4.54%	-	-	3.36% (9/14)
Custom Benchmark	5.33%	4.66%	6.85%	4.10% (9/14)
Crescent - Net	3.92%	-	-	2.89% (9/14)
High Yield	6.43%	5.96%	8.51%	9.61% (4/88)
MacKay Shields	6.77%	6.13%	8.16%	8.91% (11/00)
ML High Yield Cash Pay Index	6.13%	5.33%	8.25%	7.63% (11/00)
MacKay Shields - Net	6.40%	5.76%	7.78%	6.89% (1/05)

Taplin, Canida, & Habacht moved to Core Plus October 1, 2010.

Barings Custom Benchmark is comprised of the Credit Suisse US Leveraged Loan Index and the Credit Suisse Western European Leveraged Loan Index, weighted by the portfolio's market value to each sector.

Standish Custom Benchmark is 50% JPM GBI-EM Index, 25% JPM EMBI Global Index and 25% JPM Corporate EMBI Diversified Index.

Crescent Custom Benchmark is 50% ML U.S. High Yield Master II Index and 50% S&P/LSTA Leveraged Loan Index.

Five Best Performing Portfolio's vs. Benchmarks

Manager	Year-to-Date Outperformance (in % points)	Since Inception Outperformance (in % points)	
Sands	12.12	2.59	10/31/2003
Brandes	5.65	4.03	12/31/1995
Brown	4.83	2.16	09/30/2004
Dodge & Cox	3.35	1.51	08/31/2003
DFA Micro Cap	3.20	1.39	07/31/1987

Five Worst Performing Portfolio's vs. Benchmarks

Manager	Year-to-Date Underperformance (in % points)	Since Inception Underperformance (in % points)	
Ativo	-7.12	-0.89	09/30/2010
Pyramis SCG	-2.49	5.24	07/31/1988
Standish	-1.50	0.83	07/31/2014
Mondrian	-1.44	0.17	03/31/2012
Lazard	-1.38	1.19	03/31/2012

Five Highest Returning Portfolios

Manager	Year-to-Date Return (in % points)	Since Inception Return (in % points)	
Sands	22.52	12.54	10/31/2003
NTGI S&P500 Gr	10.89	7.91	07/31/2001
DFA Micro Cap	10.50	11.73	07/31/1987
Inv Counselors of MD	9.32	12.39	04/30/1999
Pyramis SCG	9.10	13.84	07/31/1988

Five Lowest Returning Portfolios

Manager	Year-to-Date Return (in % points)	Since Inception Return (in % points)	
Genesis	-5.02	11.52	04/30/2004
Standish	-4.97	1.71	07/31/2014
William Blair Int'l SC	-3.04	10.70	08/31/2010
Lazard	-2.85	7.10	03/31/2012
Mondrian	-2.79	5.76	03/31/2012

Returns are shown gross of investment management fees.

Excludes Real Estate and Alternative Investments portfolios.

- Schedule B - Adjustment of Benefit Awards showing adjustments required in benefit awards and the reasons therefore.
- Schedule C - Benefit Cancellations.
- Schedule D - Expiration of Temporary Disability Benefits terminated under the provisions of Section 7-147 of the Illinois Pension Code.
- Schedule E - Total and Permanent Disability Benefit Awards recommended by the Fund's medical consultants as provided by Section 7-150 of the Illinois Pension Code.
- Schedule F - Benefits Terminated.
- Schedule G - Administrative Benefit Denials.
- Schedule P - Administrative Denial of Application for Past Service Credit.
- Schedule R - Prior Service - New Governmental Units
- Schedule S - Prior Service Adjustments

Schedules - Dated July 2018

- Schedule A - Benefit award listing of retirement, temporary disability, death benefits, and refund of employee contributions processed during the preceding calendar month under Article 7 of the Illinois Pension Code.
- Schedule B - Adjustment of Benefit Awards showing adjustments required in benefit awards and the reasons therefore.
- Schedule C - Benefit Cancellations.
- Schedule D - Expiration of Temporary Disability Benefits terminated under the provisions of Section 7-147 of the Illinois Pension Code.
- Schedule E - Total and Permanent Disability Benefit Awards recommended by the Fund's medical consultants as provided by Section 7-150 of the Illinois Pension Code.
- Schedule F - Benefits Terminated.
- Schedule G - Administrative Benefit Denials.
- Schedule P - Administrative Denial of Application for Past Service Credit.

Schedules - Dated August 24, 2018

- Schedule A - Benefit award listing of retirement, temporary disability, death benefits, and refund of employee contributions processed during the preceding calendar month under Article 7 of the Illinois Pension Code.
- Schedule B - Adjustment of Benefit Awards showing adjustments required in benefit awards and the reasons therefore.
- Schedule C - Benefit Cancellations.
- Schedule D - Expiration of Temporary Disability Benefits terminated under the provisions of Section 7-147 of the Illinois Pension Code.
- Schedule E - Total and Permanent Disability Benefit Awards recommended by the Fund's medical consultants as provided by Section 7-150 of the Illinois Pension Code.
- Schedule F - Benefits Terminated.
- Schedule G - Administrative Benefit Denials.
- Schedule P - Administrative Denial of Application for Past Service Credit.

Participation of New Units of Government

Murdock Newman Bow Sar MTD 3

County: Douglas

2018 Rate: 6.95%

Effective Participation Date: September 1, 2018

Number of Participating Employees: 1

Blackhawk Rural MTAD

County: Rock Island

2018 Rate: 8.84%

Effective Participation Date: September 1, 2018

Number of Participating Employees: 2

North Riverside Public Library District

County: Cook

2018 Rate: 8.99%

Effective Participation Date: September 1, 2018

Number of Participating Employees: 8

Region 1 Planning Council

County: Winnebago

2018 Rate: 8.42%

Effective Participation Date: September 1, 2018

Number of Participating Employees: 15

Mount Carroll District Library
County: Carroll
2018 Rate: 6.57%
Effective Participation Date: September 1, 2018
Number of Participating Employees: 1

Participation of Township

Old Ripley Township
County: Bond
Estimated 2018 Rate: 9.43%
Effective Participation Date: January 1, 2019
Number of Participating Employees: 3

The following bids were presented to the Board for approval:

Storage Area Network (SAN), Software, Implementation & Annual Maintenance
Approved Bidder: Hewlett Packard Enterprise
Approved Bid: \$1,048,921.

VMWare ESXi Software and 3 Years Support
Approved Bidder: Zones
Approved Bid: \$281,456.40.

Cisco SmartNet Co-Term Renewal
Approved Bidder: Konsultek
Approved Bid: \$96,592.78.

FileNet Configuration Services
Approved Bidder: SIA Innovations
Approved Bid: \$33,000.00.

HelpSystems Automate Software and Maintenance
Approved Bidder: Software House, Inc.
Approved Bid: \$59,079.00.

Horizon Dell Chassis Hardware
Approved Bidder: Meridien IT
Approved Bid: \$711,493.22.

Kofax KTA Software and Maintenance for Development
Approved Bidder: Yakidoo
Approved Bid: \$22,805.00.

Microsoft SQL Server and Support
Approved Bidder: Konsultek
Approved Bid: \$258,291.78.

Microsoft Datacenter 2016
Approved Bidder: Konsultek
Approved Bid: \$229,939.36.

Portfolio Project Management Services
Approved Bidder: Integrated Project Management (IPM)
Approved Bid: \$65,000.
Red Gate SQL Monitor - Single Source
Approved Bidder: Red Gate Software
Approved Bid: \$47,838.40.

Review of June, July and August Financial Reporting Packages

Impact of 2018 Year-To-Date Investment Income of Employer Reserves, Funding Status and Average Employer Contribution Rate (June, July, August)

Statement of Fiduciary Net Position (April, May, June)

Schedule T - Report of Expenditures (May, June, July)

It was moved by Ms. Henry, seconded by Mr. Kuehne, to approve the items on the consent agenda.

Vote: Unanimous Voice Vote
Absent: None

(18-08-06) (Investment Committee Meeting) The Chair of the Investment Committee reported on the Investment Committee Meeting held on August 23, 2018.

The Chief Investment Officer gave a Private Equity presentation along with recommendations to the Investment Committee, followed by presentations from two Private Equity Managers (ABRY Advanced Securities Fund IV, L.P., and Versant Ventures Fund VII, L.P. and Versant Medical Technology I, L.P.).

It was the consensus of the Investment Committee to recommend the Board approve the following recommendations:

- For Private Equity
 - Authorize a commitment of up to \$75 million to ABRY Advanced Securities Fund IV, L.P., subject to satisfactory legal due diligence;
 - Authorize a commitment of up to \$40 million to Versant Ventures VII, L.P., subject to satisfactory legal due diligence;
 - Authorize a commitment of up to \$20 million to Versant Medical Technology I, L.P., subject to satisfactory legal due diligence; and,
 - Authorize staff to complete all documentation necessary to execute these recommendations.

Next, the Chief Investment Officer gave a Public Markets presentation along with recommendations.

It was the consensus of the Investment Committee to recommend the Board approve the following recommendations:

- For Public Markets
 - Crescent Capital Group
 - o Authorization to initiate a withdrawal request for full redemption of IMRF's investment within the Crescent High Income Fund;
 - o Authorization to change the Crescent High Income Fund mandate to a Crescent Private Debt separately managed account mandate, pending satisfactory legal due diligence; and
 - o Authorize staff to complete all documentation necessary to execute these recommendations.
 - Ativo Capital Management
 - o Authorization to change the mandate from U.S. Micro-Cap to International Developed + Canada, subject to satisfactory legal due diligence;
 - o Authorization of a full withdrawal (approximately \$136 million) from Ativo U.S. Micro-Cap to fund the Ativo International Developed + Canada strategy; and,
 - o Authorization of staff to complete all documentation necessary to execute these recommendations.

The Chief Investment Officer gave a presentation on extending IMRF's Master Trust Fee, along with a recommendation.

It was the consensus of the Investment Committee to recommend the Board approve the following recommendation:

- For Master Trustee
 - o Authorization to approve the five-year extension of the current Northern Trust master trust fee schedule.

Next, staff and consultant presented the 2017 Annual Private Equity Portfolio Performance.

The Chief Investment Officer gave an update to the Investment Committee on the internal management project that included implementation of the program, evaluation of the strategy, staffing, costs, policies and procedures.

After discussion, the Investment Committee provided direction that the internal management project be included in the 2019 budget.

Lastly, the Chief Investment Officer gave investment updates to the Committee on Oaktree Transportation and Energy Infrastructure Fund, Heitman American Core Real Estate Trust, L.P., and the CBRE Global Investors Pan European Fund.

It was moved by Mr. Kuehne, seconded by Mr. Wallace, to approve the recommendations of the Investment Committee.

Vote: Unanimous Voice Vote

Absent: None

(18-08-07) (Benefit Review Committee Meeting) The Chair of the Benefit Review Committee reported on the Benefit Review Committee Meeting held on August 23, 2018.

It was moved by Mr. Miller, seconded by Ms. Thompson, to accept the following recommendations of the Benefit Review Committee:

- To uphold the staff decision denying total and permanent disability benefits to Edna Roque. The Benefit Review Committee was not persuaded that the medical evidence in the record rose to the level of total and permanent disability as defined in Section 7-150 of the Illinois Pension Code where Edna Roque's testimony was inconsistent with the medical evidence in the record. For example, Edna Roque testified to being "home confined" by doctor's order, yet there was nothing in the medical records to support Edna Roque's being medically required to stay home. The Benefit Review Committee found the opinions of the medical, psychiatric, and vocational rehab consultants to be more persuasive because the opinions were based on the restrictions found in the medical records.
- To uphold the staff decision denying total and permanent disability benefits to Mairicait O'Neill. The Benefit Review Committee was not persuaded that the medical evidence in the record rose to the level of total and permanent disability as defined in Section 7-150 of the Illinois Pension Code. The Benefit Review Committee found the opinions of the medical, psychiatric, and vocational rehab consultants to be more persuasive than Mairicait O'Neill's testimony because the opinions were based on the restrictions found in the medical records. Mairicait O'Neill was capable of performing work at a light physical demand level.
- To adopt the findings and conclusion of the IMRF hearing officer in the case of James O'Donnell.
- To adopt the findings and conclusion of the IMRF hearing officer in the case of Danny Hartline.
- That David Benson returned to work in an IMRF qualifying position while receiving retirement benefits; that David Benson received a prepayment of retirement benefits that he was not entitled to in the amount of \$12,685.08 which must be repaid to IMRF; and that Collinsville CUSD No. 10 shall be liable for one half of the prepayment owed by David Benson. The Benefit Review Committee further directed its legal counsel to draft a written findings and decision setting for the basis of its decision, to be approved at a future Benefit Review Committee Meeting.

- To adopt the findings and conclusion of the IMRF hearing officer in the case of Blake Lindner.
- To adopt the findings and conclusion of the IMRF hearing officer in the case of Robert Allen.
- To adopt the findings and conclusion of the IMRF hearing officer in the case of Richard Chappell.
- To adopt the findings and conclusion of the IMRF hearing officer in the case of Jerrell Childers.
- To adopt the findings and conclusion of the IMRF hearing officer in the case of Douglas Domeracki.

Vote: Unanimous Voice Vote
 Absent: None

(18-08-08) (Legislative Update) The Legislative Liaison gave an update to the Board on current legislative activity.

She reported that three bills pertaining to IMRF passed out of the General Assembly before the adjournment on May 31st of its Spring session.

The Legislative Liaison stated that the following two bills impacting IMRF were signed by the Governor on August 17th:

- Senate Bill 2884 - allows electronic voting options for the employee and annuitant trustee elections.
- House Bill 4412 - requires all pension funds to use best efforts to ensure that the racial and ethnic make-up of its senior staff reflects that of its membership.

Questions and discussion followed.

(18-08-09) (Litigation Update) The following is an update of the currently pending or recently concluded litigation:

IN RE TRIBUNE CO, ET AL. , THE OFFICIAL COMMITTEE OF UNSECURED CREDITORS OF TRIBUNE CO, ET AL. VS. FITZSIMONS, ET AL.

Summary: The unsecured creditors in the Tribune bankruptcy sued investors who sold their Tribune stock at the time of the buyout by the Sam Zell group. The plaintiff's theory is that the buyout was fraudulent and therefore a portion of those stockholders' proceeds from the stock sale was due to the fraud and should be returned to the Tribune's bankruptcy estate.

Status: The stockholders' motion to dismiss the intentional fraudulent transfer claim was granted on January 6, 2017 and the claim against them was dismissed. Another portion of this claim against the stockholders was previously dismissed on motions and that decision was upheld on appeal.

The Court has granted the creditors motion for an order allowing an appeal

of the January 6 decision, notwithstanding that claims against other defendants remain to be litigated. The U.S. Supreme Court issued an order in early April stating that the petition for certiorari would not be ruled upon for a period of time which may result in something being filed by plaintiffs in the lower court. The Defendants' Executive Committee had a conference call on June 26, 2018 to discuss a recent court order which required a joint filing indicating the parties' interest in finding a global resolution to the matter. On July 9, 2018 a joint letter was submitted stating the Defendant Shareholder's Executive Committee supports a formal mediation process while the Plaintiffs oppose it. The case is awaiting further direction from the court.

MOTORS LIQUIDATION COMPANY AVOIDANCE ACTION TRUST VS. JP MORGAN CHASE, ET AL. (US BANKRUPTCY CT., SO. DIST. OF N.Y.)

Summary: This is an adversary action stemming from the General Motors bankruptcy. A loan in which IMRF was an investor was paid off after the bankruptcy filing. It was later discovered that an error, before the bankruptcy, had released part of the security. A group of unsecured creditors sued to force the recipients of the loan pay-off proceeds to return them.

Status: The parties are currently litigating the value of the remaining security, which if it is sufficient would end the case. We are sharing our defense counsel with several other public pension funds.

THERESA MILLER V. IMRF (16 MR 58 MONROE COUNTY)

Summary: This is an administrative review of the Board's decision to deny total and permanent disability benefits to Ms. Miller.

Status: On April 6, 2018, the Circuit Court upheld IMRF's decision. On May 3, 2018, the Plaintiff filed her Notice of Appeal to the Fifth Circuit Appellate Court. The record on appeal is due to be filed on July 7, 2018. Plaintiff's brief was filed on August 3, 2018, and IMRF's response brief is due September 7, 2018.

CARRIE MCHUGH V. IMRF (17 MR 135 KANE COUNTY)

Summary: This is an administrative review of the IMRF Board's decision adopting the recommendation of the IMRF hearing officer which found that Ms. McHugh was ineligible for disability benefits due to a voluntary termination of her employment with the City of Aurora.

Status: A briefing schedule has been set in this case. The Court extended the briefing schedule to allow Plaintiff to file a late brief over IMRF's objection. IMRF's Response Brief is due July 20, 2018; Plaintiff's Reply Brief is due August 10, 2018; and a hearing on the case will be held on August 16, 2018.

JOSHUA PEA V. IMRF (ST. CLAIR COUNTY 17 MR 1380)

Summary: This is an administrative review of the IMRF Board's denial of total and permanent disability benefits.

Status: This matter has been fully briefed. The court is foregoing oral argument and will rule based on the written briefs.

LSR v. IMRF (SANGAMON COUNTY 2017 MR 782)

Summary: This is an administrative review of staff's termination of a member's total and permanent disability benefits. The member did not appeal the staff determination, so a hearing was not held before the BRC.

Status: The court granted IMRF's motion to dismiss on August 1, 2018. The time for appealing the circuit court's decision has not yet lapsed.

JAMES SWEENEY, ET AL v. IMRF, ET AL (U.S. DISTRICT CT FOR NORTHERN DIST. OF ILL. 2018 CV 1410)

Summary: This is a case alleging that mandatory participation in IMRF is a violation of First Amendment. In its Second Amended Complaint, the Plaintiffs have added a new count alleging that the Board of Trustees has breached its fiduciary duty by investing in companies which participate in anti-union lobbying.

Status: Plaintiffs filed a Second Amended Complaint in response to IMRF's Motion to Dismiss. The case is next set for status on August 28, 2018.

THOMAS SHEAHAN v. MEABF AND IMRF (COOK COUNTY 2017 CH 14040)

Summary: This is a case in which the Plaintiff is attempting to reinstate creditable service with the MEABF as a result of the prior *Village of Oak Brook v. Sheahan* and *Sheahan v. IMRF* litigation. IMRF was recently added as a co-defendant. MEABF also filed a crossclaim against IMRF for payment of interest on the disputed funds.

Status: IMRF's motions to dismiss were denied in part and granted in part. Both the Plaintiff and the co-defendant were granted leave to amend their Complaint and cross-claim respectively. The case is set for status on IMRF's response to the amended pleadings for September 11, 2018.

JEFF INTRAVAIA v. IMRF (WILL COUNTY 18 MR 1553)

Summary: This is administrative review of IMRF's closure of Plaintiff's disability claim.

Status: IMRF's motion to dismiss was granted. Plaintiff was granted until August 17, 2018 to amend his complaint. The next status date is September 24, 2018.

WILLIAMSON COUNTY v. IMRF (WILLIAMSON COUNTY 18 MR 215)

Summary: This is administrative review of IMRF's adoption of hearing officer recommendation to affirm the staff decision to terminate the IMRF participation of the County Commissioners.

Status: IMRF filed a motion to dismiss based on the Plaintiffs' combining constitutional claims within their claim for administrative review. IMRF is awaiting further direction from the court on its motion.

JEFF BOYD v. IMRF (ROCK ISLAND COUNTY 18 MR 514)

Summary: This is administrative review of IMRF's adoption of hearing officer recommendation to affirm the staff decision to plaintiff's service credit and salary related to his service as Sheriff.

Status: IMRF's responsive pleading is due August 22, 2018.

HERAKOVICH v. IMRF (DUPAGE COUNTY 18 MR 967)

Summary: This is administrative review of IMRF's adoption of hearing officer recommendation to affirm the staff decision to exclude taxable allowances from the Plaintiff's reportable wages.

Status: IMRF's responsive pleading is due August 29, 2018.

(18-08-10) (Board Resolution) General Counsel presented a Resolution to the Board authorizing IMRF to direct payment of retirement benefits to Special Needs Trusts (SNTs) and Pooled Special Needs Trusts (PSNTs).

She stated that SNTs and PSNTs are administered for the benefit of a person who is disabled under the Social Security standard for disability. SNT's are established with a private trustee, and PSNTs are established and managed by non-profit entities and are useful when assets are insufficient to justify the cost of establishing an individual SNT.

After questions and discussion, it was moved by Mr. Kuehne, seconded by Ms. Stanish, to adopt the following Resolution:

WHEREAS, Section 1-106 of the Illinois Pension Code allows the Board of Trustees discretion to pay an annuity, solely as an accommodation to an annuitant, to a bank, savings and loan association or trust company for deposit in a trust established by the annuitant for his or her benefit; and

WHEREAS, Special Needs Trusts (SNTs) and Pooled Special Needs Trusts (PSNTs) are administered for the benefit of a disabled person and provide for the needs of the beneficiary that are not fully funded by government programs. Upon the beneficiary's death, money paid out by Medicaid is reimbursed by the trust up to the amount remaining in the trust; and

WHEREAS, Under both Illinois law and Federal law, properly established SNTs and PSNTs are excluded from the standard treatment of trusts when assessing income and resources for purposes of Medicaid eligibility; and

WHEREAS, Section 7-217 of the Illinois Pension Code provides that the right of a person to receive an annuity is not assignable which generally precludes the transfer of title and legal ownership of retirement benefits; and

WHEREAS, IMRF tax counsel has advised that the general prohibition against assignment and alienation contained in Section 7-217 of the Pension Code should be construed as not including certain SNTs/PSNTs as such trusts are treated as the equivalent of the member and failing to allow for direction to certain SNTs requires the member to use pension benefits to pay for services otherwise covered by Medicaid and other programs which is contrary to both State and Federal law; and

WHEREAS, IMRF has requested and received an opinion from its tax counsel which states that allowing payment of retirement benefits to properly established SNTs and PSNTs is a taxable distribution that does not violate the IRC §401(a) exclusive benefit rule, the anti-alienation provisions of Section 7-217 of the Pension Code, and that the IMRF Board has statutorily granted discretion under Section 1-106 to allow members to direct payment to a properly established SNT or PSNT; and

NOW THEREFORE BE IT RESOLVED by the Board of Trustees of the Illinois Municipal Retirement Fund:

That IMRF will allow payment of retirement annuities to properly established SNTs and PSNTs and this payment is a specific exception to the prohibition regarding assignment or alienation of benefits found in Section 7-217 of the Illinois Pension Code.

That payment of retirement annuities to SNTs and PSNTs is only permissible when the SNT or PSNT is established with an EIN that is the same as the member's SSN and when the SNT or PSNT meets the criteria set forth by the Social Security Program Operations Manual System for Medicaid Trust exceptions.

That payment of retirement benefits to SNTs/PSNTs is only permissible when the SNT/PSNT contains the following language:

"Trustee agrees to immediately notify IMRF of the beneficiary's death. Payments not properly payable to an IMRF member are likewise not properly payable to this trust and therefore are not subject to any Medicaid payback provisions contained herein or contained in law. Trustee agrees that these benefits will be immediately returned to IMRF by the Trustee in full upon notification by IMRF."

That payment of retirement benefits to SNTs/PSNTs shall be reported to the Internal Revenue Service (IRS) in the same manner as if the payments were made directly to the member, including reporting payments on IRS form 1099-R using the member's SSN.

That payment of retirement benefits by IMRF to SNTs and PSNTs is only permissible upon review and approval of the applicable trust documentation by IMRF.

Vote: Unanimous Voice Vote
Absent: None

(18-08-11) (Executive Session) It was moved by Mr. Wallace, seconded by Mr. Miller that the Board go into executive session for the purpose of discussing pending litigation under section 2 (c) (11) the Open Meetings Act and also for the purpose of discussing compensation for the Chief Investment Officer under section 2 (c) (1) of the Open Meetings Act. The IMRF CIO began participation after January 1, 2011, and therefore discussions surrounding her compensation are not subject to the Local Government Wage Transparency Act.

Roll Call Vote:

Aye: Kuehne, Henry, Miller, Wallace, Williams, Copper, Stanish, Thompson
Nay: None
Absent: None

(18-08-12) (Open Session) It was moved by Mr. Kuehne, seconded by Mr. Wallace, that the Board go back into open session.

Roll Call Vote:

Aye: Kuehne, Henry, Miller, Wallace, Williams, Copper, Stanish, Thompson
Nay: None
Absent: None

(18-08-13) (Action Item) It was moved by Mr. Kuehne, seconded by Mr. Wallace, to approve a 7.5% increase in the compensation for the Chief Investment Officer, retroactive to July 1, 2018.

Vote: Unanimous Voice Vote
Absent: None

(18-08-13) (Report of Executive Director) The Executive Director discussed Downstate Police and Fire Pension Funds consolidation perspectives, the potential budget impact of the Horizon Modernization Project, and the increase of retirements among Baby Boomers.

(18-08-14) (Appreciation of Service - Debra Hawkins) Members of the Board of Trustees honored Debra Hawkins, Benefits Analyst, who retired from IMRF on June 30, 2018 with the following Resolution of Appreciation:

Resolution of Appreciation

WHEREAS, Debra Hawkins, Benefits Analyst, has faithfully served IMRF from June 1984 through June 2018, and;

WHEREAS, Debra Hawkins held positions in the Benefits department throughout her tenure at IMRF, first as a Medical Transcriptionist, followed by Disability Benefit Clerk, then Disability Claims Examiner, then Disability Claims Specialist, and since September 2014 as a Benefits Claims Analyst, and;

WHEREAS, as part of the Benefits team, Debra Hawkins made significant contributions to the disability claims process, Benefits department quality assurance program, disability examiner training program, and the disability claim denial appeals process, and;

WHEREAS, Debra Hawkins played a key role in improving the accuracy of benefits claim processing by providing feedback, sharing her extensive disability claim knowledge, and providing training to the disability claims examiners, and;

WHEREAS, Debra Hawkins worked with members, employers, doctors, lawyers, and medical consultants to prepare hearing files for the Benefit Review Committee, and;

WHEREAS, during her 34 years at IMRF, Debra Hawkins supported the disability unit by helping examiners resolve complex claims, streamline the disability process, and create efficiency throughout the disability hearing appeals process, all while providing excellent customer service to staff, members, and employers;

THEREFORE, BE IT RESOLVED, that the IMRF Board of Trustees recognizes and honors Debra Hawkins for her significant contributions and excellent service to the Illinois Municipal Retirement Fund.

Recognized the IMRF Board of Trustees on Friday, August 24, 2018.

(18-08-15) (Appreciation of Service - Michael Korenevsky) Members of the Board of Trustees honored Michael Korenevsky, Information Services Team Leader, who retired from IMRF on July 31, 2018 with the following Resolution of Appreciation:

Resolution of Appreciation

WHEREAS, Michael Korenevsky, Information Services Team Leader, has faithfully served IMRF from July 1993 through July 2018, and;

WHEREAS, Michael Korenevsky contributed to the Information Services (IS) department throughout his tenure at IMRF, first as Programmer Analyst, then Senior Programmer Analyst, then Technical Architect, then Systems Project Leader, and since February 2012 as an IS Team Leader, and;

WHEREAS, as part of a team, Michael Korenevsky made significant contributions to the IMRF payment processing by managing SPECTRUM enhancements for Benefits claims processing and making improvements to IMRF correspondence, and;

WHEREAS, Michael Korenevsky played a key role in sharing knowledge with the IS team regarding SPECTRUM architecture, security, and the tools and utilities that it offered, and;

WHEREAS, during his more than 25 years at IMRF, Michael Korenevsky supported the Benefits and Finance department leaders and examiners by managing the resolution of system issues, streamlining processes, and creating efficiency through automation, all while providing exceptional customer service to staff;

THEREFORE, BE IT RESOLVED, that the IMRF Board of Trustees recognizes and honors Michael Korenevsky for his significant contributions and excellent service to the Illinois Municipal Retirement Fund.

Recognized by the IMRF Board of Trustees on Friday, August 24, 2018.

(18-08-15) (Trustee Forum) The Chair reported the following Trustee requested authorization from the Board for the following conferences:

Natalie Copper	30th Annual Pension & Financial Services Conference NASP June 23-26, 2019 Baltimore, MD
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Tom Kuehne	64 th Annual Employer Benefits Conference IFEBC October 14-17, 2018 New Orleans, LA
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Sharon U. Thompson 30th Annual Pension & Financial Services Conference
NASP
June 23-26, 2019
Baltimore, MD

Alex Wallace, Jr. 30th Annual Pension & Financial Services Conference
NASP
June 23-26, 2019
Houston, TX

It was moved by Mr. Miller seconded by Ms. Henry to approve the above
Trustee requests.

Vote: Unanimous Voice Vote
Absent: None

(18-08-16) (Adjournment) It was moved by Mr. Wallace, seconded by
Mr. Kuehne, to adjourn the Board Meeting at 12:20 p.m., to reconvene in the Fund
offices, 2211 York Road, Suite 400, Oak Brook, Illinois, at 9:00 a.m. on
November 16, 2018.

Vote: Unanimous Voice Vote
Absent: None



President

Secretary



Date

Date

